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Eight Mile / Prichard Air Study

Prichard, Mobile County, Alabama

April 24-26, 2012

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Eight Mile / Prichard Air Study
Prichard, Alabama
April 24-26, 2012

INTRODUCTION

On April 24-26, 2012, Tim Slagle and Mike Crowe, US EPA, Region 4, Science and Ecosystem Support Division (SESD) collected ambient air samples from the residential neighborhoods surrounding the Gulf South Natural Gas Pumping Station located at 3350 Suncrest Road, Prichard, Alabama. The investigation was requested by Todd Rinck, Acting Chief, Air Toxics Management Branch (ATMB), Air, Pesticides & Toxics Management, Division (APTMD), Region 4 USEPA, 61 Forsyth St., SW, Atlanta, GA 30303-8909.

BACKGROUND

Residents of Iva Loy Drive and Walter Circle in the community of Eight Mile in the police jurisdiction of Prichard, Mobile County, Alabama had been reporting a natural gas leak to Mobile Gas Service for as far back as July 2011. Mobile Gas Service found and repaired one gas leak but that did not resolve the odor which, depending on the concentration in air at the time, resembles a "gas leak" or putrid green onions. After multiple field visits, it was finally determined that butyl mercaptan, an odorant added to odorless natural gas in the distribution of natural gas to customers, is emanating from ground water where an unnamed tributary of Eight Mile Creek surfaces. On February 16, 2012 Mobile Gas Service collected a water sample at this source, i.e. the point where the spring erupts from ground and feeds into a beaver pond. The water sample contained 14,000 µg/L butyl-mercaptan. A water sample collected January 23, 2012 by Mobile Gas Service at the unnamed tributary of Eight Mile Creek immediately adjacent to Cochran Road contained 460 µg/L butyl-mercaptan.

Since 1933 there has been in existence a natural gas pipeline facility, now known as Gulf South, 1500 feet from the affected spring in a north north-west direction. Mobile Gas Service began occupying a portion of the facility in 1936, purchasing natural gas from Gulf South, transferring it into its own distribution lines, and injecting mercaptan.

The issue of potential environmental concerns within the town of Eight Mile was brought to EPA's attention in March of 2012. Citizens and public officials of Prichard indicated that there were concerns regarding sulfur like air emissions from a nearby beaver pond.

Site Description

The town of Eight Mile is located in southern Alabama at approximately 30.77 North latitude and -88.18 West longitude (decimal degrees) in Mobile County (Map 1). The source of the odor, a beaver pond, is located approximately 650 feet from the intersection of Iva Loy drive and Cochran Road at approximately 30.572 North latitude and -88.149 West longitude. The beaver pond is located approximately 1500 feet down gradient and southeast of the Gulf South Pumping Station which is located at the southern end of Suncrest Road (Maps 2 and 3).

Pollutants and Potential Sources
Although the origin of the sulfur odor in the community is under investigation by the Alabama Department of Environmental Management (ADEM), Mobile Gas Service, Gulf South and the Mobile County Health Department, the origin of the odor remains elusive. The primary concern has focused on air emissions being released from a spring that flows into a beaver pond that is down gradient (south) from the Gulf South Pumping Station. ADEM has requested assistance from the Environmental Protection Agency (EPA) in collecting air samples in the affected area.

Objective
The overall goal of this effort was to collect data of sufficient quality and quantity to determine if Eight Mile / Prichard residents in the study area are being exposed to sulfur compound concentrations in the ambient air that may pose a potential health hazard.

SAMPLING DESIGN

SESD used an authoritative sampling design to collect ambient air samples to satisfy the data quality objectives of the study. The sample locations were based on SESD's field survey instruments, odors detected during the study period, and locations where odors have been documented. The study area focused on the beaver pond and moved out into the surrounding residential neighborhoods. Eleven sampling stations (Map 1, Map 2 and Map 3) were selected for sampling by Tim Slagle Environmental Scientist, EPA Region 4 SESD. The sampling stations are described in Table 2 and depicted on the site maps contained in Appendix A. The sampling locations for the air study are described in Table 2.

The sample collection was conducted on three consecutive days at 11 locations. The samples were collected in the early morning hours starting as the sun rises. This time period is typically when the odors concentrate near the ground and are the strongest. A background sampling station designated EM01 was located outside the proposed sampling area, approximately 4 miles northeast of the site at the intersection of Shelton Beach Road and Industrial Parkway, Saraland, Alabama. This sampling station was selected to ascertain any contribution of analytes from the surrounding area (Map1).

To allow for a more complete understanding of the meteorological conditions associated with pollutant concentrations, wind speed and wind direction, was collected from an ADEM operated air monitoring station in Chickasaw, Alabama approximately 4 miles east-northeast of the site (Blue Triangle on Map 1).

Sample nomenclature for all samples was defined during the sampling event. Air was the only matrix being analyzed during this sampling event.

INVESTIGATION METHODOLOGY

Task Description

U.S. EPA, Science and Ecosystem Support Division (SESD) personnel collected ambient air

samples in the Eight Mile area. The samples were collected in Tedlar® bags and shipped to a contract lab to be analyzed for the sulfur containing gases listed in Table 1 and methane. The results were sent to SESD to assemble this sampling report that will be forwarded to the Air Pesticides and Toxics Management Division (APTMD). APTMD will determine if the sulfur compounds and methane concentrations found in the ambient air pose a potential health hazard and report these findings to the appropriate parties.

Ambient Air Sampling Procedure:

Each sampling location was field screened using a calibrated TVA-1000B equipped with a flame ionization detector (FID)/photo-ionization detector (PID) for health and safety. The instrument readings were recorded in the logbook at the start of the Tedlar® bag sample.

The Tedlar® bag sample was collected in the breathing zone, approximately 5 feet above the ground using a vacuum chamber (Photo #2 Appendix B). This sampling method avoids potential pump contamination, uses inert tubing and has no metal fittings, which can degrade sulfur compounds. The Tedlar® bag with attached tubing is placed in a small, airtight chamber with the tubing extending through the wall of the chamber. The bag sampling valve is opened and the chamber is closed. The sealed chamber is then evacuated via a pump, causing the bag to expand and draw the sample into the bag through the tubing. The chamber is opened, the bag sampling valve is closed and the sampling tube is removed. To avoid bursting the Tedlar® bag is filled no more than 2/3 full.

The air samples do not require preservation and were shipped the day of collection for next day delivery to the laboratory.

Sample Identification Protocols:

SESD used the following Station ID naming convention for the sampling stations used for this investigation;

EM for **E**ight **M**ile, Alabama followed by a numerical Station ID.
Therefore, the entire Station ID would read EM02

Sample Identification started with the Station ID and followed by the month-day-year of the sampling event. For example, sample station EM02 sampled in April 24, 2012 would have a Sample ID as follows:
EM02APR2412

Ambient air split samples were numbered successively as if there are 2 sample stations at the same location.

All samples were collected and handled in accordance with the EPA Region 4 *SESD Field Branches Quality System and Technical Procedures*. The following specific procedures were used during sample collection for all direct field measurements and sampling activities:

SESDPROC-303-R4 Ambient Air Sampling
SESDPROC-110-R3 Global Positioning System (GPS)
SESDPROC-005-R1 Sample and Evidence Management
SESDPROC-010-R4 Log Books

ANALYTICAL PLAN

The Tedlar® bag samples were shipped the day of collection, for overnight delivery to Eurofins Air Toxics, Incorporated laboratory.

The laboratory used ASTM Method D-5504 with a Sulfur Chemiluminescence Detector (SCD) for the analysis of the sulfur compounds. The Target Sulfur Compounds and reporting limits are listed in Table 1.
http://www.astm.org/Standards/D5504.htm

The laboratory used Modified ASTM Method D-1946 for the analysis of the methane in the Tedlar® bag samples. The minimum reporting limit of this method is 0.00010 percent methane in air.
http://www.astm.org/Standards/D1946.htm

RESULTS

The air sampling locations are described in Table 2. The summary tables of the sulfur compound analytical results are in Tables 3 to 5. Appendix A contains maps of the sampling locations for the study; Map 1 is an Air study Overview map that depicts the locations of the background site EM01 in Saraland, Alabama and the meteorological station in Chickasaw, Alabama to the study area in Eight Mile, Alabama. Map 2 depicts the study area around the Gulf South Pump Station. Map 3 is an enlarged view of the study area near the beaver pond. Appendix B contains selected photographs. Appendix C contains the meteorological data for April 23-26, 2012, the air study collection periods are highlighted in yellow. The Laboratory Reporting Sheets for the Air Sampling Results are contained in Appendix D.

The summary tables contain only the detections of the methane and sulfur compounds. All of the samples collected contained "background levels" of methane, as compared to the background site EM01. The low methane concentrations found at sites where sulfur compounds were detected indicate that the source of the sulfur containing compounds are not emanating from an active gas line.

The analytical results contain concentrations of three sulfur compounds; tert-Butyl Mercaptan, Ethyl Methyl Sulfide and one detection of Diethyl Sulfide which are highlighted in yellow throughout the summary tables. The locations and concentrations of the aforementioned sample results are summarized below.

Sample Day #1 April 24, 2012
Sample results tabulated in TABLE 3
Sample collection period started at station EM01 at 04:46 and ended at station EM12 at 06:47.
Wind was from the west (271° to 287°) with a wind speed of 0.4 mph to 1.9 mph.

Methane concentration range in air:

Low	0.00021%	Station EM01	Background Site
High	0.00027%	Station EM02	Indian Springs Elementary School

Samples collected at stations EM09 and EM10 are split samples collected at the same time from the same location at the intersection of Iva Loy Drive and Cochran Road. Both samples contained no sulfur compounds but had equal amounts of Methane.

EM09 Air Sample		**EM10 Split sample**	
EM09APR2412		**EM09APR2412**	
Methane	0.00021%	Methane	0.00021%

Samples collected at stations EM11 and EM12 are split samples collected at the same time from the same location at the Beaver Pond- north side.

EM11 Air Sample		**EM12 Split sample**	
EM11APR2412		**EM12APR2412**	
Methane	0.00021%	Methane	0.00021%
Tert-Butyl Mercaptan	13 PPBV	Tert-Butyl Mercaptan	18 PPBV
Ethyl Methyl Sulfide	4.8 PPBV	Ethyl Methyl Sulfide	6.8 PPBV

Sample Day #2 April 25, 2012
Sample results tabulated in TABLE 4
Sample collection period started at station EM01 at 04:25 and ended at station EM12 at 06:43.
Wind was from the west (264° to 275°) with a wind speed of 0.8 mph to 2.8 mph.

Methane concentration range in air:

Low	0.00020%	Station EM05	Bear Fork Road
	0.00020%	Station EM11	Beaver Pond- North side
High	0.00027%	Station EM02	Indian Springs Elementary School

Samples collected at stations EM11 and EM12 are split samples collected at the same time from the same location at the Beaver Pond- North side.

EM11 Air Sample		**EM12 Split sample**	
EM11APR2512		**EM12APR2512**	
Methane	0.00020%	Methane	0.00022%
Tert-Butyl Mercaptan	15 PPBV	Tert-Butyl Mercaptan	17 PPBV
Ethyl Methyl Sulfide	6.3 PPBV	Ethyl Methyl Sulfide	6.4 PPBV

Sample Day #3 April 26, 2012
Sample results tabulated in TABLE 5
Sample collection period started at station EM01 at 04:27 and ended at station EM14 at 07:39.
Wind was generally from the west (201° to 335°) with a wind speed of 0.2 mph to 5.5 mph.

Methane concentration range in air:

Low	0.00020%	Station EM04 Intersection of Brunswick Dr. & East Ridge
	0.00020%	Station EM05 Bear Fork Rd.
	0.00020%	Station EM08 Intersection of Iva Loy Dr. & Shelton Beach Rd.
	0.00020%	Station EM13 Beaver Pond- Spring
	0.00020%	Station EM14 Beaver Pond- Spring
High	0.00026%	Station EM03 Indian Springs Elementary School

The highest concentrations of Sulfur Compounds were recorded at the spring located at the beaver pond. Samples collected at stations EM13 and EM14 are split samples collected at the same time from the same location at the Beaver Pond- Spring.

EM13 Air Sample		**EM14 Split sample**	
EM13APR2612		**EM14APR2612**	
Methane	0.00020%	Methane	0.00020%
Tert-Butyl Mercaptan	230 PPBV	Tert-Butyl Mercaptan	220 PPBV
Ethyl Methyl Sulfide	72 PPBV	Ethyl Methyl Sulfide	70 PPBV
		Diethyl Sulfide	33 PPBV

QUALITY ASSURANCE

Field:
Split samples were collected on each day of sampling at the same time and through a common 1/4 inch sampling tube. This was accomplished by installing a "tee" at the free end of the sample tube inside the vacuum chamber and splitting the flow of sample into 2 separate Tedlar® bags. A photo depicting the collection of the split sample apparatus is recorded as Photo #1 in Appendix B.

Split sample results collected at monitoring sites were similar, confirming the method precision was good. However, there were small variances in the concentrations of analytes found in the split samples, which did not affect the objectives of the study. The locations of these samples are;

Split samples EM09 and EM10 were collected on April 24, 2012 at 06:00 at the intersection of Iva Loy Drive and Cochran Road. Both samples contained no sulfur compounds but had equal amounts of Methane.

Split samples EM11 and EM12 were collected on April 24, 2012 at 06:47 at the Beaver Pond-North Side. Both samples contained the same sulfur compounds at similar concentrations and had equal amounts of Methane.

Split samples EM13 and EM14 were collected on April 26, 2012 at 07:39 at the Beaver Pond-Spring. Both samples contained the same sulfur compounds at similar concentrations and had similar concentrations of Methane. However, the split sample collected at this station designated EM14APR2612 contained Diethyl Sulfide with a concentration of 33 ppbv which was not found in the other sample EM1314APR2612.

In addition, to better evaluate the analytical methods, and the quality of the data that was received from the laboratory, the identity of split samples was blind to the laboratory. This was accomplished by numbering the split samples successively as if there are 2 sample stations at the same location. In addition, the collection time recorded for the split sample at a particular location would be recorded as 10 minutes ahead of the actual sampling time. All of sampling times have been corrected back for the writing of this report.

As an additional quality assurance step, an unexposed Tedlar bag was sent to the laboratory for evaluation, and after being analyzed was determined to be free of any contamination.

As discussed earlier in this report the sample collection period was conducted in the early morning hours, and the samples were shipped the same day for overnight delivery. This sampling and shipping schedule resulted in the 24 hour limit being exceeded to analyze the samples. To ascertain the effect that the extended time before analysis might have on the samples, SESD asked the laboratory to reanalyze a sample to document any changes in concentration of the analytes. Sample EM11APR2512 was reanalyzed 28 hours after the first analysis. No observed decrease in concentration of analytes was observed.

Laboratory:

Air Toxics Limited Methods Manual Rev 18.1, 11/20/2011 page 8

Summary of Calibration and QC Procedures for Modified ASTM Method D 5504

QC Check	Minimum Frequency	Acceptance Criteria	Corrective Action
Min of 3 or more points Calibration (ICAL)	Prior to sample analysis.	RSD ≤ 30% (average). H_2S must be ≤ 30%. All others must be ≤ 40%.	Repeat calibration.
Second Source Verification (LCS)	With each Initial Calibration; with each analytical batch.	70 - 130 % of the expected values for all compounds.	Check the system, re-prepare and/or re-analyze standard. Re-calibrate instrument if criteria cannot be met.
Continuing Calibration Verification (CCV)	Daily prior to sample analysis.	% R for all compounds within 70 – 130 %.	Check the system and re-analyze the standard. If the 2nd analysis fails, identify and correct the problem. Corrective action may include re-analysis of affected samples out of Hold Time per client request.

Laboratory Blank	In between analysis of standards and project samples.	Results less than the laboratory Limit of Quantitation.	Inspect the system and re-analyze the blank. If the third blank still has contamination, consult a Scientist or Laboratory Manager.
End Check	At the end of the analytical sequence.	Recoveries within 70 - 130% with 20% (4 target analytes) allowed out.	Check system and re-analyze the standard. If the 2nd analysis fails, identify and correct the problem. Corrective action may include re-analysis of affected samples out of Hold Time per client request.
Laboratory Control Spike Duplicate (LCSD)	1 dup/analytical batch.	RPD ≤ 25 %.	Inspect the system and re-analyze; if out again, narrate.

TABLES

Table 1

ASTM Modified Method D-5504 (Sulfur Compounds) Standard Analyte List

SULFUR COMPOUND	REPORTING LIMIT
2,5-Dimethylthiophene	4 PPBV
2-Ethylthiophene	4 PPBV
3-Methylthiophene**	4 PPBV
Carbon Disulfide	5 PPBV
Carbonyl Sulfide	4 PPBV
Diethyl Disulfide	4 PPBV
Diethyl Sulfide	4 PPBV
Dimethyl Disulfide	4 PPBV
Dimethyl Sulfide	4 PPBV
Ethyl Mercaptan	4 PPBV
Ethyl Methyl Sulfide**	4 PPBV
Hydrogen Sulfide	4 PPBV
Isobutyl Mercaptan	4 PPBV
Isopropyl Mercaptan	4 PPBV
Methyl Mercaptan	4 PPBV
n-Butyl Mercaptan**	4 PPBV
n-Propyl Mercaptan	4 PPBV
tert-Butyl Mercaptan	4 PPBV
Tetrahydrothiophene	4 PPBV
Thiophene	4 PPBV

** Compounds co-elute

Table 2

Eight Mile / Prichard, Alabama Air Sampling Stations
April 24-26, 2012

Station	Matrix	Latitude	Longitude	Location
EM01	Ambient Air	30.801623	-88.106487	Background- Intersection of Shelton Beach Rd. & Industrial Pkwy.
EM02	Ambient Air	30.762116	-88.159177	Indian Springs Elementary School
EM03	Ambient Air	30.759818	-88.153469	Gulf South Front Gate, Intersection of Suncrest & Lott Rd.
EM04	Ambient Air	30.753124	-88.158429	Intersection of Brunswick Dr. & East Ridge
EM05	Ambient Air	30.748970	-88.152964	Bear Fork Rd. 240 feet West of Steadham Dr.
EM06	Ambient Air	30.755974	-88.139713	Shelton Beach Rd. 350 feet East of West Meyers Rd.
EM07	Ambient Air	30.752257	-88.144991	Cemetery Gate
EM08	Ambient Air	30.751109	-88.147389	Intersection of Iva Loy Dr. & Shelton Beach Rd.
EM09	Ambient Air	30.750736	-88.149347	Intersection of Iva Loy Dr. & Cochran Rd.
EM10	Ambient Air Split with EM09	30.750736	-88.149347	Intersection of Iva Loy Dr. & Cochran Rd.
EM11	Ambient Air	30.75277	-88.14973	Beaver Pond - North side
EM12	Ambient Air Split with EM11	30.75277	-88.14973	Beaver Pond - North side
EM13	Ambient Air	30.75263	-88.15016	Beaver Pond - Spring
EM14	Ambient Air Split with EM13	30.75263	-88.15016	Beaver Pond - Spring
#R4DART#	Field Blank	N/A	N/A	Non-Exposed Tedlar Bag

Samples collected at stations EM09 and EM10 are split samples collected at the same time from the same location.
Samples collected at stations EM11 and EM12 are split samples collected at the same time from the same location.
Samples collected at stations EM13 and EM14 are split samples collected at the same time from the same location.

Table 3

Eight Mile / Prichard, Alabama Air Sampling Results
April 24, 2012

STATION ID	COMPOUND NAME	METHOD	SAMPLE ID	SAMPLE DATE & TIME	RESULTS	UNITS	CAS NUMBER
EM01	Methane	ASTM D-1946	EM01APR2412	04/24/2012 03:46	0.00021	PERCENT	74-82-8
EM02	Methane	ASTM D-1946	EM02APR2412	04/24/2012 04:20	0.00027	PERCENT	74-82-8
EM03	Methane	ASTM D-1946	EM03APR2412	04/24/2012 04:44	0.00022	PERCENT	74-82-8
EM04	Methane	ASTM D-1946	EM04APR2412	04/24/2012 04:55	0.00026	PERCENT	74-82-8
EM05	Methane	ASTM D-1946	EM05APR2412	04/24/2012 05:04	0.00021	PERCENT	74-82-8
EM06	Methane	ASTM D-1946	EM06APR2412	04/24/2012 05:16	0.00021	PERCENT	74-82-8
EM07	Methane	ASTM D-1946	EM07APR2412	04/24/2012 05:30	0.00021	PERCENT	74-82-8
EM08	Methane	ASTM D-1946	EM08APR2412	04/24/2012 05:40	0.00021	PERCENT	74-82-8
EM09	Methane	ASTM D-1946	EM09APR2412	04/24/2012 06:00	0.00021	PERCENT	74-82-8
EM10	Methane	ASTM D-1946	EM10APR2412	04/24/2012 06:00	0.00021	PERCENT	74-82-8
EM11	Methane	ASTM D-1946	EM11APR2412	04/24/2012 06:47	0.00021	PERCENT	74-82-8
EM11	tert-Butyl Mercaptan	ASTM D-5504	EM11APR2412	04/24/2012 06:47	13	PPBV	75-66-1
EM11	Ethyl Methyl Sulfide	ASTM D-5504	EM11APR2412	04/24/2012 06:47	4.8	PPBV	624-89-5
EM12	Methane	ASTM D-1946	EM12APR2412	04/24/2012 06:47	0.00021	PERCENT	74-82-8
EM12	tert-Butyl Mercaptan	ASTM D-5504	EM12APR2412	04/24/2012 06:47	18	PPBV	75-66-1
EM12	Ethyl Methyl Sulfide	ASTM D-5504	EM12APR2412	04/24/2012 06:47	6.8	PPBV	624-89-5

Methane Results are reported as percent concentration in ambient air
Sulfur Compounds are reported in parts per billion by volume and are highlighted in yellow

Samples collected at stations EM09 and EM10 are split samples collected at the same time from the same location.
Samples collected at stations EM11 and EM12 are split samples collected at the same time from the same location.

Table 4

Eight Mile / Prichard, Alabama Air Sampling Results
April 25, 2012

STATION ID	COMPOUND NAME	METHOD	SAMPLE ID	SAMPLE DATE &TIME	RESULTS	UNITS	CAS NUMBER
EM01	Methane	ASTM D-1946	EM01APR2512	04/25/2012 04:25	0.00031	PERCENT	74-82-8
EM02	Methane	ASTM D-1946	EM02APR2512	04/25/2012 04:55	0.00042	PERCENT	74-82-8
EM03	Methane	ASTM D-1946	EM03APR2512	04/25/2012 05:13	0.00027	PERCENT	74-82-8
EM04	Methane	ASTM D-1946	EM04APR2512	04/25/2012 05:22	0.00024	PERCENT	74-82-8
EM05	Methane	ASTM D-1946	EM05APR2512	04/25/2012 05:30	0.00020	PERCENT	74-82-8
EM06	Methane	ASTM D-1946	EM06APR2512	04/25/2012 05:38	0.00022	PERCENT	74-82-8
EM07	Methane	ASTM D-1946	EM07APR2512	04/25/2012 05:48	0.00022	PERCENT	74-82-8
EM08	Methane	ASTM D-1946	EM08APR2512	04/25/2012 05:55	0.00022	PERCENT	74-82-8
EM09	Methane	ASTM D-1946	EM09APR2512	04/25/2012 06:03	0.00022	PERCENT	74-82-8
EM11	Methane	ASTM D-1946	EM11APR2512	04/25/2012 06:43	0.00020	PERCENT	74-82-8
EM11	tert-Butyl Mercaptan	ASTM D-5504	EM11APR2512	04/25/2012 06:43	15	PPBV	75-66-1
EM11	Ethyl Methyl Sulfide	ASTM D-5504	EM11APR2512	04/25/2012 06:43	6.3	PPBV	624-89-5
EM12	Methane	ASTM D-1946	EM12APR2512	04/25/2012 06:43	0.00022	PERCENT	74-82-8
EM12	tert-Butyl Mercaptan	ASTM D-5504	EM12APR2512	04/25/2012 06:43	17	PPBV	75-66-1
EM12	Ethyl Methyl Sulfide	ASTM D-5504	EM12APR2512	04/25/2012 06:43	6.4	PPBV	624-89-5

Methane Results are reported as percent concentration in ambient air
Sulfur Compounds are reported in parts per billion by volume and are highlighted in yellow

Samples collected at stations EM11 and EM12 are split samples collected at the same time from the same location.

Table 5

Eight Mile / Prichard, Alabama Air Sampling Results
April 26, 2012

STATION ID	COMPOUND NAME	METHOD	SAMPLE ID	SAMPLE DATE & TIME	RESULTS	UNITS	CAS NUMBER
EM01	Methane	ASTM D-1946	EM01APR2612	04/26/2012 04:27	0.00021	PERCENT	74-82-8
EM02	Methane	ASTM D-1946	EM02APR2612	04/26/2012 04:57	0.00021	PERCENT	74-82-8
EM03	Methane	ASTM D-1946	EM03APR2612	04/26/2012 05:06	0.00026	PERCENT	74-82-8
EM04	Methane	ASTM D-1946	EM04APR2612	04/26/2012 05:21	0.00020	PERCENT	74-82-8
EM05	Methane	ASTM D-1946	EM05APR2612	04/26/2012 05:33	0.00020	PERCENT	74-82-8
EM06	Methane	ASTM D-1946	EM06APR2612	04/26/2012 05:42	0.00024	PERCENT	74-82-8
EM07	Methane	ASTM D-1946	EM07APR2612	04/26/2012 05:53	0.00022	PERCENT	74-82-8
EM07	tert-Butyl Mercaptan	ASTM D-5504	EM07APR2612	04/26/2012 05:53	4.1	PPBV	75-66-1
EM08	Methane	ASTM D-1946	EM08APR2612	04/26/2012 06:00	0.00020	PERCENT	74-82-8
EM08	tert-Butyl Mercaptan	ASTM D-5504	EM08APR2612	04/26/2012 06:00	8.9	PPBV	75-66-1
EM09	Methane	ASTM D-1946	EM09APR2612	04/26/2012 06:07	0.00020	PERCENT	74-82-8
EM09	tert-Butyl Mercaptan	ASTM D-5504	EM09APR2612	04/26/2012 06:07	10	PPBV	75-66-1
EM13	Methane	ASTM D-1946	EM13APR2612	04/26/2012 07:39	0.00020	PERCENT	74-82-8
EM13	tert-Butyl Mercaptan	ASTM D-5504	EM14APR2612	04/26/2012 07:39	230	PPBV	75-66-1
EM13	Ethyl Methyl Sulfide	ASTM D-5504	EM14APR2612	04/26/2012 07:39	72	PPBV	624-89-5
EM14	Methane	ASTM D-1946	EM14APR2612	04/26/2012 07:39	0.00020	PERCENT	74-82-8
EM14	tert-Butyl Mercaptan	ASTM D-5504	EM14APR2612	04/26/2012 07:39	220	PPBV	75-66-1
EM14	Ethyl Methyl Sulfide	ASTM D-5504	EM14APR2612	04/26/2012 07:39	70	PPBV	624-89-5
EM14	Diethyl Sulfide	ASTM D-5504	EM14APR2612	04/26/2012 07:39	33	PPBV	652-93-2

Methane Results are reported as percent concentration in ambient air
Sulfur Compounds are reported in parts per billion by volume and are highlighted in yellow

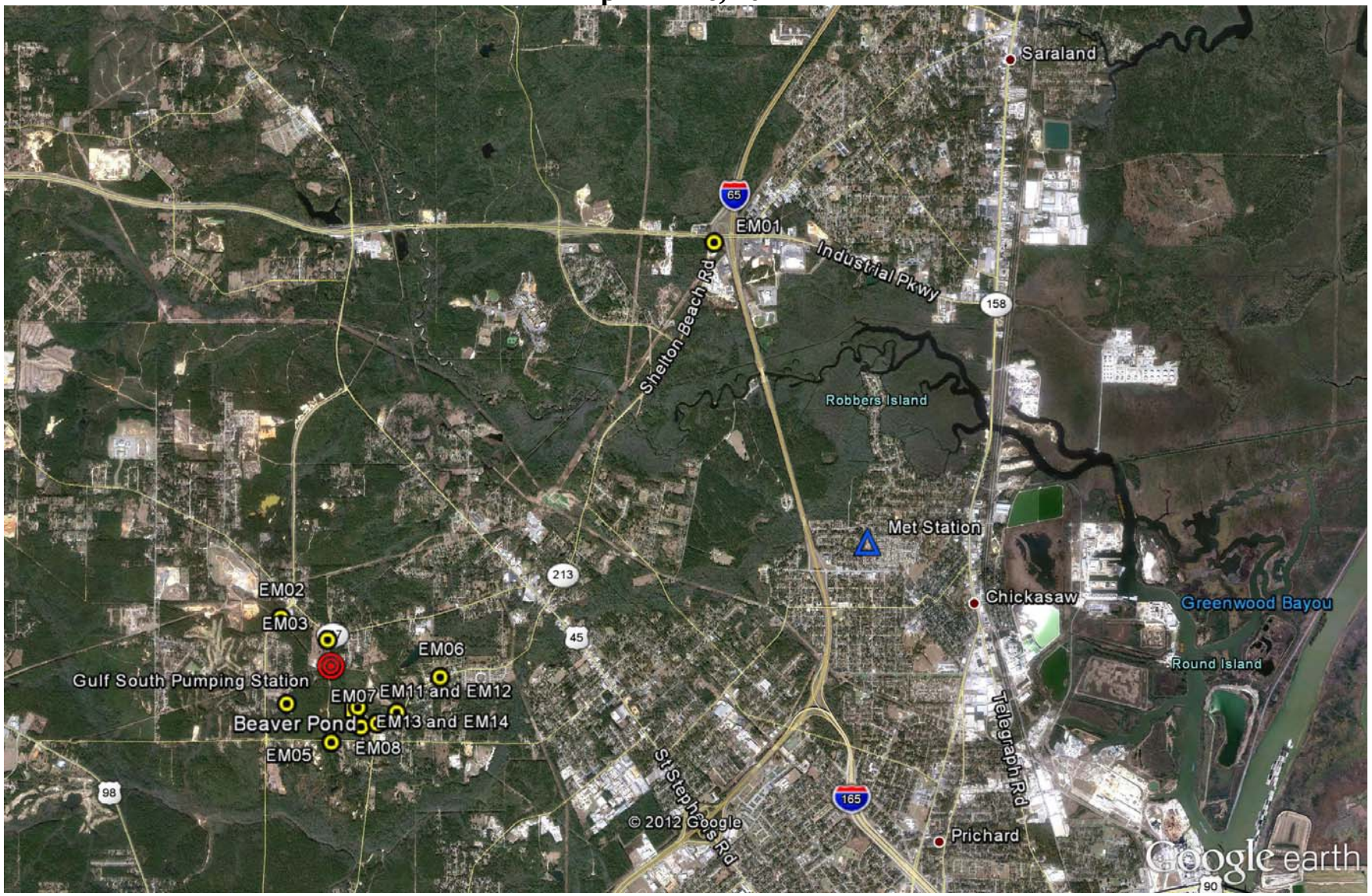
Samples collected at stations EM13 and EM14 are split samples collected at the same time from the same location.

APPENDIX A

SITE MAPS

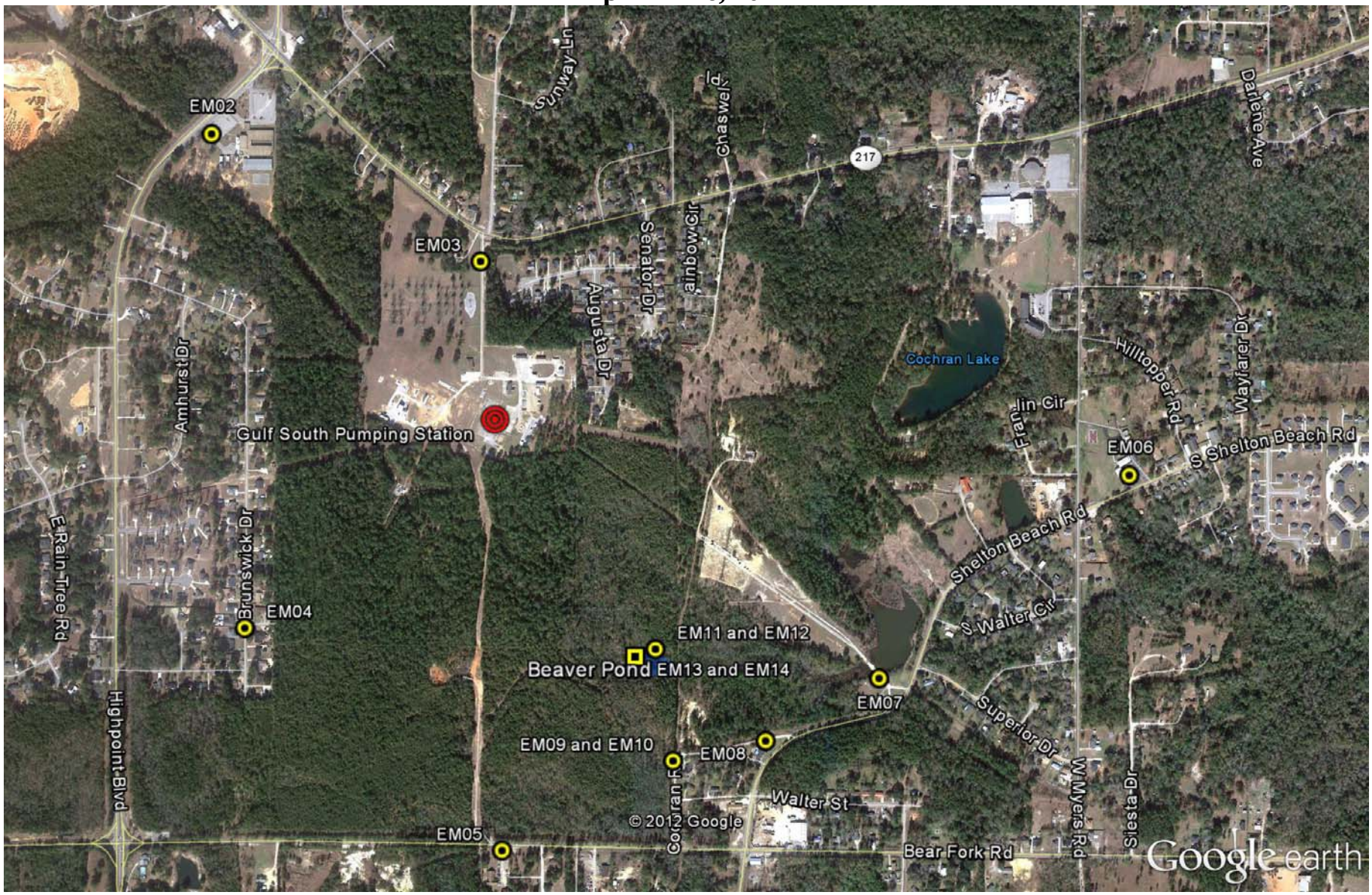
Map 1

Eight Mile / Prichard, Alabama Air Study Overview
April 24-26, 2012



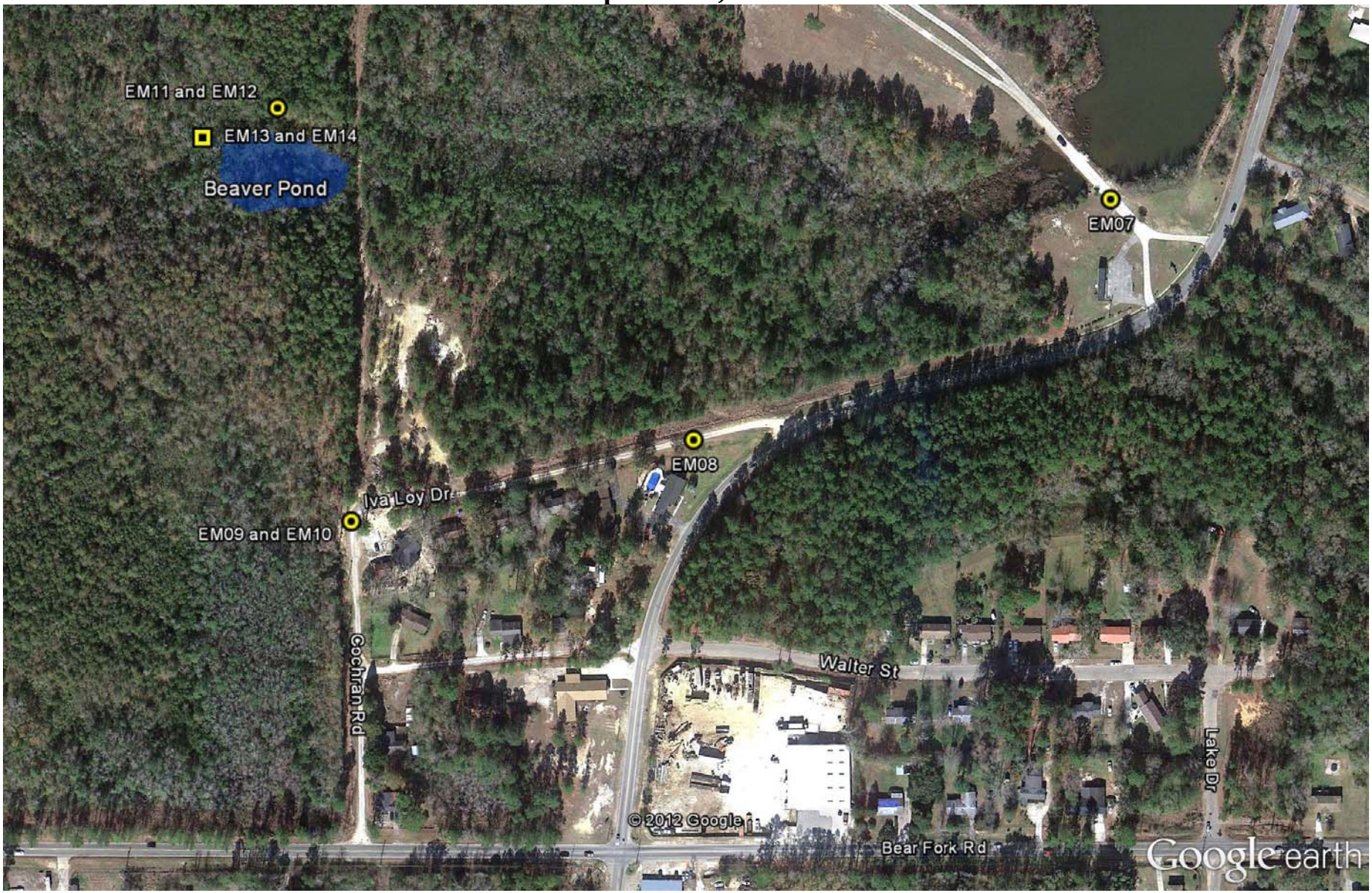
Map 2

Eight Mile / Prichard, Alabama Air Study Sampling Stations
April 24-26, 2012



Map 3

Eight Mile / Prichard, Alabama Air Study Sampling Stations
April 24-26, 2012



APPENDIX B

SELECTED PHOTOGRAPHS

Photo #1 Tedlar Bag Split Sample Collection Apparatus

Photo #2 Tedlar Bag Sample Collection at Station EM 03

APPENDIX C

METEROLOGICAL DATA

DATE	HOUR	WIND SPEED	WIND DIRECTION
4/23/2012	0	2.8	324
4/23/2012	1	2.5	325
4/23/2012	2	2.3	325
4/23/2012	3	3.2	324
4/23/2012	4	2.5	325
4/23/2012	5	2.1	311
4/23/2012	6	3.7	322
4/23/2012	7	6.6	343
4/23/2012	8	6.9	354
4/23/2012	9	7.7	339
4/23/2012	10	7.1	333
4/23/2012	11	8	336
4/23/2012	12	6.6	327
4/23/2012	13	6.4	323
4/23/2012	14	7	333
4/23/2012	15	7.8	335
4/23/2012	16	5.8	335
4/23/2012	17	5	335
4/23/2012	18	2.6	332
4/23/2012	19	0.6	319
4/23/2012	20	1	318
4/23/2012	21	0.8	295
4/23/2012	22	0.5	302
4/23/2012	23	1.1	292
4/24/2012	0	0.8	283
4/24/2012	1	0.8	276
4/24/2012	2	0.5	273
4/24/2012	3	0.4	273
4/24/2012	4	0.6	271
4/24/2012	5	1	276
4/24/2012	6	0.8	282
4/24/2012	7	1.9	287
4/24/2012	8	2.2	266
4/24/2012	9	2.5	245
4/24/2012	10	2.8	328
4/24/2012	11	3.7	270
4/24/2012	12	3.9	276
4/24/2012	13	3.7	263
4/24/2012	14	3	271
4/24/2012	15	2.3	289
4/24/2012	16	3.3	259
4/24/2012	17	5	233
4/24/2012	18	3.3	232
4/24/2012	19	3	216
4/24/2012	20	3.1	217
4/24/2012	21	3.1	224
4/24/2012	22	2.6	217
4/24/2012	23	3	234

Air sample collection periods are highlighted in yellow

DATE	HOUR	WIND SPEED	WIND DIRECTION
4/25/2012	0	3.5	240
4/25/2012	1	2.4	248
4/25/2012	2	2.1	255
4/25/2012	3	1.3	273
4/25/2012	4	0.8	264
4/25/2012	5	0.9	267
4/25/2012	6	1.2	275
4/25/2012	7	2.8	265
4/25/2012	8	3.7	254
4/25/2012	9	3.5	245
4/25/2012	10	5.3	204
4/25/2012	11	5	187
4/25/2012	12	5.1	222
4/25/2012	13	7.3	196
4/25/2012	14	7.6	198
4/25/2012	15	7.5	206
4/25/2012	16	7.5	205
4/25/2012	17	6.1	203
4/25/2012	18	5.6	200
4/25/2012	19	4.8	192
4/25/2012	20	3.6	194
4/25/2012	21	3.4	197
4/25/2012	22	4	209
4/25/2012	23	5.4	211
4/26/2012	0	3.9	226
4/26/2012	1	3.7	212
4/26/2012	2	3.3	215
4/26/2012	3	2.3	214
4/26/2012	4	1.6	201
4/26/2012	5	0.2	335
4/26/2012	6	0.9	248
4/26/2012	7	4.3	222
4/26/2012	8	5.5	217
4/26/2012	9	6.1	223
4/26/2012	10	5.8	222
4/26/2012	11	6.2	215
4/26/2012	12	6.6	215
4/26/2012	13	6.9	215
4/26/2012	14	7	199
4/26/2012	15	6.6	217
4/26/2012	16	6.3	214
4/26/2012	17	6.7	198
4/26/2012	18	4.7	211
4/26/2012	19	3.1	208
4/26/2012	20	3.6	200
4/26/2012	21	4.8	199
4/26/2012	22	2.9	214
4/26/2012	23	1	155

Air sample collection periods are highlighted in yellow

APPENDIX C

LABORATORY ANALYSIS SHEETS

Data Package - Sulfur Gases by ASTM D-5504
Samples collected April 24, 2012
Received at lab April 25, 2012
(21 pages)

Data Package - Natural Gas Analysis (Methane) by ASTM D-1946
Samples collected April 24, 2012
Received at lab April 25, 2012
(23 pages)

Data Package - Sulfur Gases by ASTM D-5504
Samples collected April 25, 2012
Received at lab April 26, 2012
(23 pages)

Data Package - Natural Gas Analysis (Methane) by ASTM D-1946
Samples collected April 25, 2012
Received at lab April 26, 2012
(20 pages)

Data Package - Sulfur Gases by ASTM D-5504
Samples collected April 26, 2012
Received at lab April 27, 2012
(19 pages)

Data Package - Natural Gas Analysis (Methane) by ASTM D-1946
Samples collected April 26, 2012
Received at lab April 27, 2012
(20 pages)

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6/8/2012

Tim Slagle
US EPA Region IV
980 College Station Rd

Athens GA 30605-2720

Project Name: Eight Mile Air Study
Project #: PR-R4-12-00301
Workorder #: 1204521A

Dear Tim Slagle

The following report includes the data for the above referenced project for sample(s) received on 4/25/2012 at Air Toxics Ltd.

The data and associated QC analyzed by ASTM D-5504 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Air Toxics Ltd. for your air analysis needs. Air Toxics Ltd. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,

Ausha Scott

Project Manager

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WORK ORDER #: 1204521A

Work Order Summary

CLIENT:	Tim Slagle US EPA Region IV 980 College Station Rd Athens, GA 30605-2720	**BILL TO:**	US EPA Finance Center US EPA Mail Drop D143-02 109 T.W. Alexander Dr. Durham, NC 27711
PHONE:	706-355-8741	**P.O. #**	EP-12-4-000049
FAX:	706-355-8744	**PROJECT #**	PR-R4-12-00301 Eight Mile Air Study
DATE RECEIVED:	04/25/2012	**CONTACT:**	Ausha Scott
DATE COMPLETED:	04/30/2012		

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.	FINAL PRESSURE
01A	EM01APR2412	ASTM D-5504	Tedlar Bag	Tedlar Bag
02A	EM02APR2412	ASTM D-5504	Tedlar Bag	Tedlar Bag
03A	EM03APR2412	ASTM D-5504	Tedlar Bag	Tedlar Bag
04A	EM04APR2412	ASTM D-5504	Tedlar Bag	Tedlar Bag
05A	EM05APR2412	ASTM D-5504	Tedlar Bag	Tedlar Bag
06A	EM06APR2412	ASTM D-5504	Tedlar Bag	Tedlar Bag
07A	EM07APR2412	ASTM D-5504	Tedlar Bag	Tedlar Bag
08A	EM08APR2412	ASTM D-5504	Tedlar Bag	Tedlar Bag
09A	EM09APR2412	ASTM D-5504	Tedlar Bag	Tedlar Bag
10A	EM10APR2412	ASTM D-5504	Tedlar Bag	Tedlar Bag
11A	EM11APR2412	ASTM D-5504	Tedlar Bag	Tedlar Bag
12A	EM12APR2412	ASTM D-5504	Tedlar Bag	Tedlar Bag
13A	#R4DART#BAG BLK	ASTM D-5504	Tedlar Bag	Tedlar Bag
14A	Lab Blank	ASTM D-5504	NA	NA
15A	LCS	ASTM D-5504	NA	NA
15AA	LCSD	ASTM D-5504	NA	NA

CERTIFIED BY: Linda D. Fruman DATE: 04/30/12

Laboratory Director

Certfication numbers: AZ Licensure AZ0719, CA NELAP - 02110CA, LA NELAP - 02089,
NY NELAP - 11291, TX NELAP - T104704434-11-3, UT NELAP -CA009332011-1, WA NELAP - C935
Name of Accrediting Agency: NELAP/Florida Department of Health, Scope of Application: Clean Air Act,
Accreditation number: E87680, Effective date: 07/01/11 , Expiration date: 06/30/12.
Air Toxics Ltd. certifies that the test results contained in this report meet all requirements of the NELAC standards

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
(916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
ASTM D-5504
US EPA Region IV
Workorder# 1204521A

Thirteen 1 Liter Tedlar Bag samples were received on April 25, 2012. The laboratory performed the analysis of sulfur compounds via ASTM D-5504 using GC/SCD. The method involves direct injection of the air sample into the GC via a fixed 2.0 mL sampling loop. See the data sheets for the reporting limits for each compound.

Receiving Notes

Samples were received past the recommended hold time of 24 hours. Analysis proceeded.

Analytical Notes

There were no analytical discrepancies.

Definition of Data Qualifying Flags

Seven qualifiers may have been used on the data analysis sheets and indicate as follows:
B - Compound present in laboratory blank greater than reporting limit.
J - Estimated value.
E - Exceeds instrument calibration range.
S - Saturated peak.
Q - Exceeds quality control limits.
U - Compound analyzed for but not detected above the detection limit.
M - Reported value may be biased due to apparent matrix interferences.
File extensions may have been used on the data analysis sheets and indicates as follows:
a-File was requantified
b-File was quantified by a second column and detector
r1-File was requantified for the purpose of reissue

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Summary of Detected Compounds
SULFUR GASES BY ASTM D-5504 GC/SCD

Client Sample ID: EM01APR2412

Lab ID#: 1204521A-01A
No Detections Were Found.

Client Sample ID: EM02APR2412

Lab ID#: 1204521A-02A
No Detections Were Found.

Client Sample ID: EM03APR2412

Lab ID#: 1204521A-03A
No Detections Were Found.

Client Sample ID: EM04APR2412

Lab ID#: 1204521A-04A
No Detections Were Found.

Client Sample ID: EM05APR2412

Lab ID#: 1204521A-05A
No Detections Were Found.

Client Sample ID: EM06APR2412

Lab ID#: 1204521A-06A
No Detections Were Found.

Client Sample ID: EM07APR2412

Lab ID#: 1204521A-07A
No Detections Were Found.

Client Sample ID: EM08APR2412

Lab ID#: 1204521A-08A
No Detections Were Found.

Client Sample ID: EM09APR2412

Lab ID#: 1204521A-09A

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Summary of Detected Compounds
SULFUR GASES BY ASTM D-5504 GC/SCD

Client Sample ID: EM09APR2412

Lab ID#: 1204521A-09A

No Detections Were Found.

Client Sample ID: EM10APR2412

Lab ID#: 1204521A-10A

No Detections Were Found.

Client Sample ID: EM11APR2412

Lab ID#: 1204521A-11A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)
tert-Butyl Mercaptan	4.0	13
Ethyl Methyl Sulfide	4.0	4.8

Client Sample ID: EM12APR2412

Lab ID#: 1204521A-12A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)
tert-Butyl Mercaptan	4.0	18
Ethyl Methyl Sulfide	4.0	6.8

Client Sample ID: #R4DART#BAG BLK

Lab ID#: 1204521A-13A

No Detections Were Found.

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Client Sample ID: EM01APR2412

Lab ID#: 1204521A-01A

SULFUR GASES BY ASTM D-5504 GC/SCD

File Name:	**I042506**	**Date of Collection:**	**4/24/12**
Dil. Factor:	**1.00**	**Date of Analysis:**	**4/25/12 07:52 AM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)
Hydrogen Sulfide	4.0	Not Detected
Carbonyl Sulfide	4.0	Not Detected
Methyl Mercaptan	4.0	Not Detected
Ethyl Mercaptan	4.0	Not Detected
Dimethyl Sulfide	4.0	Not Detected
Carbon Disulfide	5.0	Not Detected
Isopropyl Mercaptan	4.0	Not Detected
tert-Butyl Mercaptan	4.0	Not Detected
n-Propyl Mercaptan	4.0	Not Detected
Ethyl Methyl Sulfide	4.0	Not Detected
Thiophene	4.0	Not Detected
Isobutyl Mercaptan	4.0	Not Detected
Diethyl Sulfide	4.0	Not Detected
n-Butyl Mercaptan	4.0	Not Detected
Dimethyl Disulfide	4.0	Not Detected
3-Methylthiophene	4.0	Not Detected
Tetrahydrothiophene	4.0	Not Detected
2-Ethylthiophene	4.0	Not Detected
2,5-Dimethylthiophene	4.0	Not Detected
Diethyl Disulfide	4.0	Not Detected

Container Type: 1 Liter Tedlar Bag

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Client Sample ID: EM02APR2412

Lab ID#: 1204521A-02A

SULFUR GASES BY ASTM D-5504 GC/SCD

File Name:	**I042507**	**Date of Collection:**	**4/24/12**
Dil. Factor:	**1.00**	**Date of Analysis:**	**4/25/12 08:13 AM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)
Hydrogen Sulfide	4.0	Not Detected
Carbonyl Sulfide	4.0	Not Detected
Methyl Mercaptan	4.0	Not Detected
Ethyl Mercaptan	4.0	Not Detected
Dimethyl Sulfide	4.0	Not Detected
Carbon Disulfide	5.0	Not Detected
Isopropyl Mercaptan	4.0	Not Detected
tert-Butyl Mercaptan	4.0	Not Detected
n-Propyl Mercaptan	4.0	Not Detected
Ethyl Methyl Sulfide	4.0	Not Detected
Thiophene	4.0	Not Detected
Isobutyl Mercaptan	4.0	Not Detected
Diethyl Sulfide	4.0	Not Detected
n-Butyl Mercaptan	4.0	Not Detected
Dimethyl Disulfide	4.0	Not Detected
3-Methylthiophene	4.0	Not Detected
Tetrahydrothiophene	4.0	Not Detected
2-Ethylthiophene	4.0	Not Detected
2,5-Dimethylthiophene	4.0	Not Detected
Diethyl Disulfide	4.0	Not Detected

Container Type: 1 Liter Tedlar Bag

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Client Sample ID: EM03APR2412

Lab ID#: 1204521A-03A

SULFUR GASES BY ASTM D-5504 GC/SCD

File Name:	**I042508**	**Date of Collection:**	**4/24/12**
Dil. Factor:	**1.00**	**Date of Analysis:**	**4/25/12 08:36 AM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)
Hydrogen Sulfide	4.0	Not Detected
Carbonyl Sulfide	4.0	Not Detected
Methyl Mercaptan	4.0	Not Detected
Ethyl Mercaptan	4.0	Not Detected
Dimethyl Sulfide	4.0	Not Detected
Carbon Disulfide	5.0	Not Detected
Isopropyl Mercaptan	4.0	Not Detected
tert-Butyl Mercaptan	4.0	Not Detected
n-Propyl Mercaptan	4.0	Not Detected
Ethyl Methyl Sulfide	4.0	Not Detected
Thiophene	4.0	Not Detected
Isobutyl Mercaptan	4.0	Not Detected
Diethyl Sulfide	4.0	Not Detected
n-Butyl Mercaptan	4.0	Not Detected
Dimethyl Disulfide	4.0	Not Detected
3-Methylthiophene	4.0	Not Detected
Tetrahydrothiophene	4.0	Not Detected
2-Ethylthiophene	4.0	Not Detected
2,5-Dimethylthiophene	4.0	Not Detected
Diethyl Disulfide	4.0	Not Detected

Container Type: 1 Liter Tedlar Bag

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Client Sample ID: EM04APR2412

Lab ID#: 1204521A-04A

SULFUR GASES BY ASTM D-5504 GC/SCD

File Name:	**I042509**	**Date of Collection:**	**4/24/12**
Dil. Factor:	**1.00**	**Date of Analysis:**	**4/25/12 08:57 AM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)
Hydrogen Sulfide	4.0	Not Detected
Carbonyl Sulfide	4.0	Not Detected
Methyl Mercaptan	4.0	Not Detected
Ethyl Mercaptan	4.0	Not Detected
Dimethyl Sulfide	4.0	Not Detected
Carbon Disulfide	5.0	Not Detected
Isopropyl Mercaptan	4.0	Not Detected
tert-Butyl Mercaptan	4.0	Not Detected
n-Propyl Mercaptan	4.0	Not Detected
Ethyl Methyl Sulfide	4.0	Not Detected
Thiophene	4.0	Not Detected
Isobutyl Mercaptan	4.0	Not Detected
Diethyl Sulfide	4.0	Not Detected
n-Butyl Mercaptan	4.0	Not Detected
Dimethyl Disulfide	4.0	Not Detected
3-Methylthiophene	4.0	Not Detected
Tetrahydrothiophene	4.0	Not Detected
2-Ethylthiophene	4.0	Not Detected
2,5-Dimethylthiophene	4.0	Not Detected
Diethyl Disulfide	4.0	Not Detected

Container Type: 1 Liter Tedlar Bag

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Client Sample ID: EM05APR2412

Lab ID#: 1204521A-05A

SULFUR GASES BY ASTM D-5504 GC/SCD

File Name:	**I042510**	**Date of Collection:**	**4/24/12**
Dil. Factor:	**1.00**	**Date of Analysis:**	**4/25/12 09:19 AM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)
Hydrogen Sulfide	4.0	Not Detected
Carbonyl Sulfide	4.0	Not Detected
Methyl Mercaptan	4.0	Not Detected
Ethyl Mercaptan	4.0	Not Detected
Dimethyl Sulfide	4.0	Not Detected
Carbon Disulfide	5.0	Not Detected
Isopropyl Mercaptan	4.0	Not Detected
tert-Butyl Mercaptan	4.0	Not Detected
n-Propyl Mercaptan	4.0	Not Detected
Ethyl Methyl Sulfide	4.0	Not Detected
Thiophene	4.0	Not Detected
Isobutyl Mercaptan	4.0	Not Detected
Diethyl Sulfide	4.0	Not Detected
n-Butyl Mercaptan	4.0	Not Detected
Dimethyl Disulfide	4.0	Not Detected
3-Methylthiophene	4.0	Not Detected
Tetrahydrothiophene	4.0	Not Detected
2-Ethylthiophene	4.0	Not Detected
2,5-Dimethylthiophene	4.0	Not Detected
Diethyl Disulfide	4.0	Not Detected

Container Type: 1 Liter Tedlar Bag

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Client Sample ID: EM06APR2412

Lab ID#: 1204521A-06A

SULFUR GASES BY ASTM D-5504 GC/SCD

File Name:	**I042511**	**Date of Collection:**	**4/24/12**
Dil. Factor:	**1.00**	**Date of Analysis:**	**4/25/12 09:41 AM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)
Hydrogen Sulfide	4.0	Not Detected
Carbonyl Sulfide	4.0	Not Detected
Methyl Mercaptan	4.0	Not Detected
Ethyl Mercaptan	4.0	Not Detected
Dimethyl Sulfide	4.0	Not Detected
Carbon Disulfide	5.0	Not Detected
Isopropyl Mercaptan	4.0	Not Detected
tert-Butyl Mercaptan	4.0	Not Detected
n-Propyl Mercaptan	4.0	Not Detected
Ethyl Methyl Sulfide	4.0	Not Detected
Thiophene	4.0	Not Detected
Isobutyl Mercaptan	4.0	Not Detected
Diethyl Sulfide	4.0	Not Detected
n-Butyl Mercaptan	4.0	Not Detected
Dimethyl Disulfide	4.0	Not Detected
3-Methylthiophene	4.0	Not Detected
Tetrahydrothiophene	4.0	Not Detected
2-Ethylthiophene	4.0	Not Detected
2,5-Dimethylthiophene	4.0	Not Detected
Diethyl Disulfide	4.0	Not Detected

Container Type: 1 Liter Tedlar Bag

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Client Sample ID: EM07APR2412

Lab ID#: 1204521A-07A

SULFUR GASES BY ASTM D-5504 GC/SCD

File Name:	**I042512**	**Date of Collection:**	**4/24/12**
Dil. Factor:	**1.00**	**Date of Analysis:**	**4/25/12 10:03 AM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)
Hydrogen Sulfide	4.0	Not Detected
Carbonyl Sulfide	4.0	Not Detected
Methyl Mercaptan	4.0	Not Detected
Ethyl Mercaptan	4.0	Not Detected
Dimethyl Sulfide	4.0	Not Detected
Carbon Disulfide	5.0	Not Detected
Isopropyl Mercaptan	4.0	Not Detected
tert-Butyl Mercaptan	4.0	Not Detected
n-Propyl Mercaptan	4.0	Not Detected
Ethyl Methyl Sulfide	4.0	Not Detected
Thiophene	4.0	Not Detected
Isobutyl Mercaptan	4.0	Not Detected
Diethyl Sulfide	4.0	Not Detected
n-Butyl Mercaptan	4.0	Not Detected
Dimethyl Disulfide	4.0	Not Detected
3-Methylthiophene	4.0	Not Detected
Tetrahydrothiophene	4.0	Not Detected
2-Ethylthiophene	4.0	Not Detected
2,5-Dimethylthiophene	4.0	Not Detected
Diethyl Disulfide	4.0	Not Detected

Container Type: 1 Liter Tedlar Bag

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Client Sample ID: EM08APR2412

Lab ID#: 1204521A-08A

SULFUR GASES BY ASTM D-5504 GC/SCD

File Name:	**I042513**	**Date of Collection:**	**4/24/12**
Dil. Factor:	**1.00**	**Date of Analysis:**	**4/25/12 10:24 AM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)
Hydrogen Sulfide	4.0	Not Detected
Carbonyl Sulfide	4.0	Not Detected
Methyl Mercaptan	4.0	Not Detected
Ethyl Mercaptan	4.0	Not Detected
Dimethyl Sulfide	4.0	Not Detected
Carbon Disulfide	5.0	Not Detected
Isopropyl Mercaptan	4.0	Not Detected
tert-Butyl Mercaptan	4.0	Not Detected
n-Propyl Mercaptan	4.0	Not Detected
Ethyl Methyl Sulfide	4.0	Not Detected
Thiophene	4.0	Not Detected
Isobutyl Mercaptan	4.0	Not Detected
Diethyl Sulfide	4.0	Not Detected
n-Butyl Mercaptan	4.0	Not Detected
Dimethyl Disulfide	4.0	Not Detected
3-Methylthiophene	4.0	Not Detected
Tetrahydrothiophene	4.0	Not Detected
2-Ethylthiophene	4.0	Not Detected
2,5-Dimethylthiophene	4.0	Not Detected
Diethyl Disulfide	4.0	Not Detected

Container Type: 1 Liter Tedlar Bag

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Client Sample ID: EM09APR2412

Lab ID#: 1204521A-09A

SULFUR GASES BY ASTM D-5504 GC/SCD

File Name:	**I042514**	**Date of Collection:**	**4/24/12**
Dil. Factor:	**1.00**	**Date of Analysis:**	**4/25/12 10:46 AM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)
Hydrogen Sulfide	4.0	Not Detected
Carbonyl Sulfide	4.0	Not Detected
Methyl Mercaptan	4.0	Not Detected
Ethyl Mercaptan	4.0	Not Detected
Dimethyl Sulfide	4.0	Not Detected
Carbon Disulfide	5.0	Not Detected
Isopropyl Mercaptan	4.0	Not Detected
tert-Butyl Mercaptan	4.0	Not Detected
n-Propyl Mercaptan	4.0	Not Detected
Ethyl Methyl Sulfide	4.0	Not Detected
Thiophene	4.0	Not Detected
Isobutyl Mercaptan	4.0	Not Detected
Diethyl Sulfide	4.0	Not Detected
n-Butyl Mercaptan	4.0	Not Detected
Dimethyl Disulfide	4.0	Not Detected
3-Methylthiophene	4.0	Not Detected
Tetrahydrothiophene	4.0	Not Detected
2-Ethylthiophene	4.0	Not Detected
2,5-Dimethylthiophene	4.0	Not Detected
Diethyl Disulfide	4.0	Not Detected

Container Type: 1 Liter Tedlar Bag

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Client Sample ID: EM10APR2412

Lab ID#: 1204521A-10A

SULFUR GASES BY ASTM D-5504 GC/SCD

File Name:	**I042515**	**Date of Collection:**	**4/24/12**
Dil. Factor:	**1.00**	**Date of Analysis:**	**4/25/12 11:08 AM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)
Hydrogen Sulfide	4.0	Not Detected
Carbonyl Sulfide	4.0	Not Detected
Methyl Mercaptan	4.0	Not Detected
Ethyl Mercaptan	4.0	Not Detected
Dimethyl Sulfide	4.0	Not Detected
Carbon Disulfide	5.0	Not Detected
Isopropyl Mercaptan	4.0	Not Detected
tert-Butyl Mercaptan	4.0	Not Detected
n-Propyl Mercaptan	4.0	Not Detected
Ethyl Methyl Sulfide	4.0	Not Detected
Thiophene	4.0	Not Detected
Isobutyl Mercaptan	4.0	Not Detected
Diethyl Sulfide	4.0	Not Detected
n-Butyl Mercaptan	4.0	Not Detected
Dimethyl Disulfide	4.0	Not Detected
3-Methylthiophene	4.0	Not Detected
Tetrahydrothiophene	4.0	Not Detected
2-Ethylthiophene	4.0	Not Detected
2,5-Dimethylthiophene	4.0	Not Detected
Diethyl Disulfide	4.0	Not Detected

Container Type: 1 Liter Tedlar Bag

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Client Sample ID: EM11APR2412

Lab ID#: 1204521A-11A

SULFUR GASES BY ASTM D-5504 GC/SCD

File Name:	**I042516**	**Date of Collection:**	**4/24/12**
Dil. Factor:	**1.00**	**Date of Analysis:**	**4/25/12 11:29 AM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)
Hydrogen Sulfide	4.0	Not Detected
Carbonyl Sulfide	4.0	Not Detected
Methyl Mercaptan	4.0	Not Detected
Ethyl Mercaptan	4.0	Not Detected
Dimethyl Sulfide	4.0	Not Detected
Carbon Disulfide	5.0	Not Detected
Isopropyl Mercaptan	4.0	Not Detected
tert-Butyl Mercaptan	4.0	13
n-Propyl Mercaptan	4.0	Not Detected
Ethyl Methyl Sulfide	4.0	4.8
Thiophene	4.0	Not Detected
Isobutyl Mercaptan	4.0	Not Detected
Diethyl Sulfide	4.0	Not Detected
n-Butyl Mercaptan	4.0	Not Detected
Dimethyl Disulfide	4.0	Not Detected
3-Methylthiophene	4.0	Not Detected
Tetrahydrothiophene	4.0	Not Detected
2-Ethylthiophene	4.0	Not Detected
2,5-Dimethylthiophene	4.0	Not Detected
Diethyl Disulfide	4.0	Not Detected

Container Type: 1 Liter Tedlar Bag

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Client Sample ID: EM12APR2412

Lab ID#: 1204521A-12A

SULFUR GASES BY ASTM D-5504 GC/SCD

File Name:	**I042517**	**Date of Collection:**	**4/24/12**
Dil. Factor:	**1.00**	**Date of Analysis:**	**4/25/12 11:51 AM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)
Hydrogen Sulfide	4.0	Not Detected
Carbonyl Sulfide	4.0	Not Detected
Methyl Mercaptan	4.0	Not Detected
Ethyl Mercaptan	4.0	Not Detected
Dimethyl Sulfide	4.0	Not Detected
Carbon Disulfide	5.0	Not Detected
Isopropyl Mercaptan	4.0	Not Detected
tert-Butyl Mercaptan	4.0	18
n-Propyl Mercaptan	4.0	Not Detected
Ethyl Methyl Sulfide	4.0	6.8
Thiophene	4.0	Not Detected
Isobutyl Mercaptan	4.0	Not Detected
Diethyl Sulfide	4.0	Not Detected
n-Butyl Mercaptan	4.0	Not Detected
Dimethyl Disulfide	4.0	Not Detected
3-Methylthiophene	4.0	Not Detected
Tetrahydrothiophene	4.0	Not Detected
2-Ethylthiophene	4.0	Not Detected
2,5-Dimethylthiophene	4.0	Not Detected
Diethyl Disulfide	4.0	Not Detected

Container Type: 1 Liter Tedlar Bag

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Client Sample ID: #R4DART#BAG BLK

Lab ID#: 1204521A-13A

SULFUR GASES BY ASTM D-5504 GC/SCD

File Name:	**I042518**	**Date of Collection:**	**4/24/12**
Dil. Factor:	**1.00**	**Date of Analysis:**	**4/25/12 12:12 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)
Hydrogen Sulfide	4.0	Not Detected
Carbonyl Sulfide	4.0	Not Detected
Methyl Mercaptan	4.0	Not Detected
Ethyl Mercaptan	4.0	Not Detected
Dimethyl Sulfide	4.0	Not Detected
Carbon Disulfide	5.0	Not Detected
Isopropyl Mercaptan	4.0	Not Detected
tert-Butyl Mercaptan	4.0	Not Detected
n-Propyl Mercaptan	4.0	Not Detected
Ethyl Methyl Sulfide	4.0	Not Detected
Thiophene	4.0	Not Detected
Isobutyl Mercaptan	4.0	Not Detected
Diethyl Sulfide	4.0	Not Detected
n-Butyl Mercaptan	4.0	Not Detected
Dimethyl Disulfide	4.0	Not Detected
3-Methylthiophene	4.0	Not Detected
Tetrahydrothiophene	4.0	Not Detected
2-Ethylthiophene	4.0	Not Detected
2,5-Dimethylthiophene	4.0	Not Detected
Diethyl Disulfide	4.0	Not Detected

Container Type: 1 Liter Tedlar Bag

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Client Sample ID: Lab Blank

Lab ID#: 1204521A-14A

SULFUR GASES BY ASTM D-5504 GC/SCD

File Name:	**I042505**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 4/24/12 08:59 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)
Hydrogen Sulfide	4.0	Not Detected
Carbonyl Sulfide	4.0	Not Detected
Methyl Mercaptan	4.0	Not Detected
Ethyl Mercaptan	4.0	Not Detected
Dimethyl Sulfide	4.0	Not Detected
Carbon Disulfide	5.0	Not Detected
Isopropyl Mercaptan	4.0	Not Detected
tert-Butyl Mercaptan	4.0	Not Detected
n-Propyl Mercaptan	4.0	Not Detected
Ethyl Methyl Sulfide	4.0	Not Detected
Thiophene	4.0	Not Detected
Isobutyl Mercaptan	4.0	Not Detected
Diethyl Sulfide	4.0	Not Detected
n-Butyl Mercaptan	4.0	Not Detected
Dimethyl Disulfide	4.0	Not Detected
3-Methylthiophene	4.0	Not Detected
Tetrahydrothiophene	4.0	Not Detected
2-Ethylthiophene	4.0	Not Detected
2,5-Dimethylthiophene	4.0	Not Detected
Diethyl Disulfide	4.0	Not Detected

Container Type: NA - Not Applicable

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Client Sample ID: LCS

Lab ID#: 1204521A-15A

SULFUR GASES BY ASTM D-5504 GC/SCD

File Name:	**I042502**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 4/24/12 06:55 PM**	

Compound	%Recovery
Hydrogen Sulfide	114
Carbonyl Sulfide	105
Methyl Mercaptan	100
Ethyl Mercaptan	103
Dimethyl Sulfide	97
Carbon Disulfide	85
Isopropyl Mercaptan	121
tert-Butyl Mercaptan	107
n-Propyl Mercaptan	104
Ethyl Methyl Sulfide	99
Thiophene	97
Isobutyl Mercaptan	100
Diethyl Sulfide	100
n-Butyl Mercaptan	100
Dimethyl Disulfide	97
3-Methylthiophene	96
Tetrahydrothiophene	100
2-Ethylthiophene	99
2,5-Dimethylthiophene	96
Diethyl Disulfide	96

Container Type: NA - Not Applicable

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Client Sample ID: LCSD

Lab ID#: 1204521A-15AA

SULFUR GASES BY ASTM D-5504 GC/SCD

File Name:	**I042504**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 4/24/12 08:22 PM**	

Compound	%Recovery
Hydrogen Sulfide	103
Carbonyl Sulfide	107
Methyl Mercaptan	99
Ethyl Mercaptan	102
Dimethyl Sulfide	96
Carbon Disulfide	84
Isopropyl Mercaptan	106
tert-Butyl Mercaptan	98
n-Propyl Mercaptan	104
Ethyl Methyl Sulfide	97
Thiophene	96
Isobutyl Mercaptan	99
Diethyl Sulfide	99
n-Butyl Mercaptan	103
Dimethyl Disulfide	96
3-Methylthiophene	94
Tetrahydrothiophene	103
2-Ethylthiophene	100
2,5-Dimethylthiophene	95
Diethyl Disulfide	98

Container Type: NA - Not Applicable

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6/7/2012

Tim Slagle
US EPA Region IV
980 College Station Rd

Athens GA 30605-2720

Project Name: Eight Mile Air Study
Project #: PR-R4-12-00301
Workorder #: 1204521B

Dear Tim Slagle

The following report includes the data for the above referenced project for sample(s) received on 4/25/2012 at Air Toxics Ltd.

The data and associated QC analyzed by Modified ASTM D-1946 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Air Toxics Ltd. for your air analysis needs. Air Toxics Ltd. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,

Ausha Scott

Project Manager

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WORK ORDER #: 1204521B

Work Order Summary

CLIENT:	Tim Slagle US EPA Region IV 980 College Station Rd Athens, GA 30605-2720	**BILL TO:**	US EPA Finance Center US EPA Mail Drop D143-02 109 T.W. Alexander Dr. Durham, NC 27711
PHONE:	706-355-8741	**P.O. #**	EP-12-4-000049
FAX:	706-355-8744	**PROJECT #**	PR-R4-12-00301 Eight Mile Air Study
DATE RECEIVED:	04/25/2012	**CONTACT:**	Ausha Scott
DATE COMPLETED:	05/08/2012		

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.	FINAL PRESSURE
01A	EM01APR2412	Modified ASTM D-1946	Tedlar Bag	Tedlar Bag
02A	EM02APR2412	Modified ASTM D-1946	Tedlar Bag	Tedlar Bag
03A	EM03APR2412	Modified ASTM D-1946	Tedlar Bag	Tedlar Bag
04A	EM04APR2412	Modified ASTM D-1946	Tedlar Bag	Tedlar Bag
05A	EM05APR2412	Modified ASTM D-1946	Tedlar Bag	Tedlar Bag
06A	EM06APR2412	Modified ASTM D-1946	Tedlar Bag	Tedlar Bag
07A	EM07APR2412	Modified ASTM D-1946	Tedlar Bag	Tedlar Bag
08A	EM08APR2412	Modified ASTM D-1946	Tedlar Bag	Tedlar Bag
09A	EM09APR2412	Modified ASTM D-1946	Tedlar Bag	Tedlar Bag
10A	EM10APR2412	Modified ASTM D-1946	Tedlar Bag	Tedlar Bag
11A	EM11APR2412	Modified ASTM D-1946	Tedlar Bag	Tedlar Bag
12A	EM12APR2412	Modified ASTM D-1946	Tedlar Bag	Tedlar Bag
13A	#R4DART#BAG BLK	Modified ASTM D-1946	Tedlar Bag	Tedlar Bag
14A	Lab Blank	Modified ASTM D-1946	NA	NA
15A	LCS	Modified ASTM D-1946	NA	NA
15AA	LCSD	Modified ASTM D-1946	NA	NA

CERTIFIED BY: Linda D. Fruman DATE: 05/08/12

Laboratory Director

Certfication numbers: AZ Licensure AZ0719, CA NELAP - 02110CA, LA NELAP - 02089,
NY NELAP - 11291, TX NELAP - T104704434-11-3, UT NELAP -CA009332011-1, WA NELAP - C935
Name of Accrediting Agency: NELAP/Florida Department of Health, Scope of Application: Clean Air Act,
Accreditation number: E87680, Effective date: 07/01/11 , Expiration date: 06/30/12.
Air Toxics Ltd. certifies that the test results contained in this report meet all requirements of the NELAC standards

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
(916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
Modified ASTM D-1945
US EPA Region IV
Workorder# 1204521B

Thirteen 1 Liter Tedlar Bag samples were received on April 25, 2012. The laboratory performed analysis via modified ASTM Method D-1945 for Methane in natural gas using GC/FID. The method involves direct injection of 1.0 mL of sample.

Method modifications taken to run these samples are summarized in the table below. Specific project requirements may over-ride the ATL modifications.

Requirement	***ASTM D-1945***	***ATL Modifications***
Normalization	Sum of original values should not differ from 100.0% by more than 1.0%.	Sum of original values may range between 85-115%. Normalization of data not performed.
Sample analysis	Equilibrate samples to 20-50° F. above source temperature at field sampling	No heating of samples is performed.
Sample calculation	Response factor is calculated using peak height for C5 and lighter compounds.	Peak areas are used for all target analytes to quantitate concentrations.
Reference Standard	Concentration should not be < half of nor differ by more than 2 X the concentration of the sample. Run 2 consecutive checks; must agree within 1%.	A minimum 3-point linear calibration is performed. The acceptance criterion is %RSD </= 15%. All target analytes must be within the linear range of calibration (with the exception of O2, N2, and C6+ Hydrocarbons).
Sample Injection Volume	0.50 mL to achieve Methane linearity.	1.0 mL.

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

There were no analytical discrepancies.

Definition of Data Qualifying Flags

Six qualifiers may have been used on the data analysis sheets and indicate as follows:
J - Estimated value.
E - Exceeds instrument calibration range.
S - Saturated peak.
Q - Exceeds quality control limits.
U - Compound analyzed for but not detected above the detection limit.

M - Reported value may be biased due to apparent matrix interferences.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified
b-File was quantified by a second column and detector
r1-File was requantified for the purpose of reissue

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Summary of Detected Compounds
NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

Client Sample ID: EM01APR2412

Lab ID#: 1204521B-01A

Compound	Rpt. Limit (%)	Amount (%)
Methane	0.00010	0.00021

Client Sample ID: EM02APR2412

Lab ID#: 1204521B-02A

Compound	Rpt. Limit (%)	Amount (%)
Methane	0.00010	0.00027

Client Sample ID: EM03APR2412

Lab ID#: 1204521B-03A

Compound	Rpt. Limit (%)	Amount (%)
Methane	0.00010	0.00022

Client Sample ID: EM04APR2412

Lab ID#: 1204521B-04A

Compound	Rpt. Limit (%)	Amount (%)
Methane	0.00010	0.00026

Client Sample ID: EM05APR2412

Lab ID#: 1204521B-05A

Compound	Rpt. Limit (%)	Amount (%)
Methane	0.00010	0.00021

Client Sample ID: EM06APR2412

Lab ID#: 1204521B-06A

Compound	Rpt. Limit (%)	Amount (%)
Methane	0.00010	0.00021

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Summary of Detected Compounds
NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

Client Sample ID: EM07APR2412

Lab ID#: 1204521B-07A

Compound	Rpt. Limit (%)	Amount (%)
Methane	0.00010	0.00021

Client Sample ID: EM08APR2412

Lab ID#: 1204521B-08A

Compound	Rpt. Limit (%)	Amount (%)
Methane	0.00010	0.00021

Client Sample ID: EM09APR2412

Lab ID#: 1204521B-09A

Compound	Rpt. Limit (%)	Amount (%)
Methane	0.00010	0.00021

Client Sample ID: EM10APR2412

Lab ID#: 1204521B-10A

Compound	Rpt. Limit (%)	Amount (%)
Methane	0.00010	0.00021

Client Sample ID: EM11APR2412

Lab ID#: 1204521B-11A

Compound	Rpt. Limit (%)	Amount (%)
Methane	0.00010	0.00021

Client Sample ID: EM12APR2412

Lab ID#: 1204521B-12A

Compound	Rpt. Limit (%)	Amount (%)
Methane	0.00010	0.00021

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Summary of Detected Compounds
NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

Client Sample ID: #R4DART#BAG BLK

Lab ID#: 1204521B-13A

No Detections Were Found.

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Client Sample ID: EM01APR2412

Lab ID#: 1204521B-01A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9042722**	**Date of Collection: 4/24/12 3:46:00 AM**	
Dil. Factor:	**1.00**	**Date of Analysis: 4/27/12 12:46 PM**	

Compound	**Rpt. Limit (%)**	**Amount (%)**
Methane	0.00010	0.00021

Container Type: 1 Liter Tedlar Bag

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Client Sample ID: EM02APR2412

Lab ID#: 1204521B-02A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9042723**	**Date of Collection: 4/24/12 4:20:00 AM**	
Dil. Factor:	**1.00**	**Date of Analysis: 4/27/12 01:09 PM**	

Compound	Rpt. Limit (%)	Amount (%)
Methane	0.00010	0.00027

Container Type: 1 Liter Tedlar Bag

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Client Sample ID: EM03APR2412

Lab ID#: 1204521B-03A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9042724**	**Date of Collection: 4/24/12 4:44:00 AM**	
Dil. Factor:	**1.00**	**Date of Analysis: 4/27/12 01:31 PM**	

Compound	Rpt. Limit (%)	Amount (%)
Methane	0.00010	0.00022

Container Type: 1 Liter Tedlar Bag

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Client Sample ID: EM04APR2412

Lab ID#: 1204521B-04A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9042725**	**Date of Collection: 4/24/12 4:55:00 AM**	
Dil. Factor:	**1.00**	**Date of Analysis: 4/27/12 01:57 PM**	

Compound	Rpt. Limit (%)	Amount (%)
Methane	0.00010	0.00026

Container Type: 1 Liter Tedlar Bag

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Client Sample ID: EM05APR2412

Lab ID#: 1204521B-05A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9042726**	**Date of Collection: 4/24/12 5:04:00 AM**	
Dil. Factor:	**1.00**	**Date of Analysis: 4/27/12 02:32 PM**	

Compound	**Rpt. Limit (%)**	**Amount (%)**
Methane	0.00010	0.00021

Container Type: 1 Liter Tedlar Bag

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Client Sample ID: EM06APR2412

Lab ID#: 1204521B-06A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9042727**	**Date of Collection: 4/24/12 5:16:00 AM**	
Dil. Factor:	**1.00**	**Date of Analysis: 4/27/12 02:59 PM**	

Compound	**Rpt. Limit (%)**	**Amount (%)**
Methane	0.00010	0.00021

Container Type: 1 Liter Tedlar Bag

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Client Sample ID: EM07APR2412

Lab ID#: 1204521B-07A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9042728**	**Date of Collection: 4/24/12 5:30:00 AM**	
Dil. Factor:	**1.00**	**Date of Analysis: 4/27/12 03:22 PM**	

Compound	**Rpt. Limit (%)**	**Amount (%)**
Methane	0.00010	0.00021

Container Type: 1 Liter Tedlar Bag

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Client Sample ID: EM08APR2412

Lab ID#: 1204521B-08A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9042729**	**Date of Collection: 4/24/12 5:40:00 AM**	
Dil. Factor:	**1.00**	**Date of Analysis: 4/27/12 03:50 PM**	

Compound	**Rpt. Limit (%)**	**Amount (%)**
Methane	0.00010	0.00021

Container Type: 1 Liter Tedlar Bag

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Client Sample ID: EM09APR2412

Lab ID#: 1204521B-09A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9042730**	**Date of Collection: 4/24/12 6:10:00 AM**	
Dil. Factor:	**1.00**	**Date of Analysis: 4/27/12 04:14 PM**	

Compound	**Rpt. Limit (%)**	**Amount (%)**
Methane	0.00010	0.00021

Container Type: 1 Liter Tedlar Bag

eurofins | Air Toxics

Client Sample ID: EM10APR2412

Lab ID#: 1204521B-10A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9042731**	**Date of Collection: 4/24/12 6:00:00 AM**	
Dil. Factor:	**1.00**	**Date of Analysis: 4/27/12 04:35 PM**	

Compound	**Rpt. Limit (%)**	**Amount (%)**
Methane	0.00010	0.00021

Container Type: 1 Liter Tedlar Bag

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Client Sample ID: EM11APR2412

Lab ID#: 1204521B-11A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9042732**	**Date of Collection: 4/24/12 6:47:00 AM**	
Dil. Factor:	**1.00**	**Date of Analysis: 4/27/12 05:10 PM**	

Compound	Rpt. Limit (%)	Amount (%)
Methane	0.00010	0.00021

Container Type: 1 Liter Tedlar Bag

eurofins | Air Toxics

Client Sample ID: EM12APR2412

Lab ID#: 1204521B-12A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9042733**	**Date of Collection: 4/24/12 6:57:00 AM**	
Dil. Factor:	**1.00**	**Date of Analysis: 4/27/12 05:36 PM**	

Compound	**Rpt. Limit (%)**	**Amount (%)**
Methane	0.00010	0.00021

Container Type: 1 Liter Tedlar Bag

eurofins | Air Toxics

Client Sample ID: #R4DART#BAG BLK

Lab ID#: 1204521B-13A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9042734**	**Date of Collection: 4/24/12 7:20:00 AM**	
Dil. Factor:	**1.00**	**Date of Analysis: 4/27/12 06:01 PM**	

Compound	**Rpt. Limit (%)**	**Amount (%)**
Methane	0.00010	Not Detected

Container Type: 1 Liter Tedlar Bag

eurofins | Air Toxics

Client Sample ID: Lab Blank

Lab ID#: 1204521B-14A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9042718**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 4/27/12 11:09 AM**	

Compound	**Rpt. Limit (%)**	**Amount (%)**
Methane	0.00010	Not Detected

Container Type: NA - Not Applicable

eurofins | Air Toxics

Client Sample ID: LCS

Lab ID#: 1204521B-15A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9042715**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 4/27/12 10:05 AM**	

Compound	%Recovery
Methane	99

Container Type: NA - Not Applicable

eurofins | Air Toxics

Client Sample ID: LCSD

Lab ID#: 1204521B-15AA

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9042738**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 4/27/12 07:57 PM**	

Compound	%Recovery
Methane	100

Container Type: NA - Not Applicable

eurofins | Air Toxics

6/8/2012

Tim Slagle
US EPA Region IV
980 College Station Rd

Athens GA 30605-2720

Project Name: Eight Mile Air Study
Project #: PR-R4-12-00301
Workorder #: 1204547A

Dear Tim Slagle

The following report includes the data for the above referenced project for sample(s) received on 4/26/2012 at Air Toxics Ltd.

The data and associated QC analyzed by ASTM D-5504 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Air Toxics Ltd. for your air analysis needs. Air Toxics Ltd. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,

Ausha Scott

Project Manager

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WORK ORDER #: 1204547A

Work Order Summary

CLIENT:	Tim Slagle US EPA Region IV 980 College Station Rd Athens, GA 30605-2720	**BILL TO:**	US EPA Finance Center US EPA Mail Drop D143-02 109 T.W. Alexander Dr. Durham, NC 27711
PHONE:	706-355-8741	**P.O. #**	EP-12-4-000049
FAX:	706-355-8744	**PROJECT #**	PR-R4-12-00301 Eight Mile Air Study
DATE RECEIVED:	04/26/2012	**CONTACT:**	Ausha Scott
DATE COMPLETED:	05/01/2012		

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.	FINAL PRESSURE
01A	EM01APR2512	ASTM D-5504	Tedlar Bag	Tedlar Bag
02A	EM02APR2512	ASTM D-5504	Tedlar Bag	Tedlar Bag
03A	EM03APR2512	ASTM D-5504	Tedlar Bag	Tedlar Bag
04A	EM04APR2512	ASTM D-5504	Tedlar Bag	Tedlar Bag
05A	EM05APR2512	ASTM D-5504	Tedlar Bag	Tedlar Bag
06A	EM06APR2512	ASTM D-5504	Tedlar Bag	Tedlar Bag
07A	EM07APR2512	ASTM D-5504	Tedlar Bag	Tedlar Bag
08A	EM08APR2512	ASTM D-5504	Tedlar Bag	Tedlar Bag
09A	EM09APR2512	ASTM D-5504	Tedlar Bag	Tedlar Bag
10A	EM11APR2512	ASTM D-5504	Tedlar Bag	Tedlar Bag
11A	EM12APR2512	ASTM D-5504	Tedlar Bag	Tedlar Bag
11B	EM12APR2512	ASTM D-5504	Tedlar Bag	Tedlar Bag
12A	Lab Blank	ASTM D-5504	NA	NA
12B	Lab Blank	ASTM D-5504	NA	NA
13A	LCS	ASTM D-5504	NA	NA
13AA	LCSD	ASTM D-5504	NA	NA
13B	LCS	ASTM D-5504	NA	NA
13BB	LCSD	ASTM D-5504	NA	NA

CERTIFIED BY: Linda D. Frumarc DATE: 05/01/12

Laboratory Director

Certfication numbers: AZ Licensure AZ0719, CA NELAP - 02110CA, LA NELAP - 02089,
NY NELAP - 11291, TX NELAP - T104704434-11-3, UT NELAP -CA009332011-1, WA NELAP - C935
Name of Accrediting Agency: NELAP/Florida Department of Health, Scope of Application: Clean Air Act,
Accreditation number: E87680, Effective date: 07/01/11 , Expiration date: 06/30/12.
Air Toxics Ltd. certifies that the test results contained in this report meet all requirements of the NELAC standards

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
(916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

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LABORATORY NARRATIVE
ASTM D-5504
US EPA Region IV
Workorder# 1204547A

Eleven 1 Liter Tedlar Bag samples were received on April 26, 2012. The laboratory performed the analysis of sulfur compounds via ASTM D-5504 using GC/SCD. The method involves direct injection of the air sample into the GC via a fixed 2.0 mL sampling loop. See the data sheets for the reporting limits for each compound.

Receiving Notes

Samples were received past the recommended hold time of 24 hours. Analysis proceeded.

Analytical Notes

There were no analytical discrepancies.

The recovery for Diethyl Disulfide in the LCSD was outside the laboratory control limits.

Definition of Data Qualifying Flags

Seven qualifiers may have been used on the data analysis sheets and indicate as follows:
B - Compound present in laboratory blank greater than reporting limit.
J - Estimated value.
E - Exceeds instrument calibration range.
S - Saturated peak.
Q - Exceeds quality control limits.
U - Compound analyzed for but not detected above the detection limit.
M - Reported value may be biased due to apparent matrix interferences.
File extensions may have been used on the data analysis sheets and indicates as follows:
a-File was requantified
b-File was quantified by a second column and detector
r1-File was requantified for the purpose of reissue

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Summary of Detected Compounds
SULFUR GASES BY ASTM D-5504 GC/SCD

Client Sample ID: EM01APR2512

Lab ID#: 1204547A-01A
No Detections Were Found.

Client Sample ID: EM02APR2512

Lab ID#: 1204547A-02A
No Detections Were Found.

Client Sample ID: EM03APR2512

Lab ID#: 1204547A-03A
No Detections Were Found.

Client Sample ID: EM04APR2512

Lab ID#: 1204547A-04A
No Detections Were Found.

Client Sample ID: EM05APR2512

Lab ID#: 1204547A-05A
No Detections Were Found.

Client Sample ID: EM06APR2512

Lab ID#: 1204547A-06A
No Detections Were Found.

Client Sample ID: EM07APR2512

Lab ID#: 1204547A-07A
No Detections Were Found.

Client Sample ID: EM08APR2512

Lab ID#: 1204547A-08A
No Detections Were Found.

Client Sample ID: EM09APR2512

Lab ID#: 1204547A-09A

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Summary of Detected Compounds
SULFUR GASES BY ASTM D-5504 GC/SCD

Client Sample ID: EM09APR2512

Lab ID#: 1204547A-09A

No Detections Were Found.

Client Sample ID: EM11APR2512

Lab ID#: 1204547A-10A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)
tert-Butyl Mercaptan	4.0	15
Ethyl Methyl Sulfide	4.0	6.3

Client Sample ID: EM12APR2512

Lab ID#: 1204547A-11A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)
tert-Butyl Mercaptan	4.0	17
Ethyl Methyl Sulfide	4.0	6.4

Client Sample ID: EM12APR2512

Lab ID#: 1204547A-11B

Compound	Rpt. Limit (ppbv)	Amount (ppbv)
tert-Butyl Mercaptan	4.0	23
Ethyl Methyl Sulfide	4.0	8.2

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Client Sample ID: EM01APR2512

Lab ID#: 1204547A-01A

SULFUR GASES BY ASTM D-5504 GC/SCD

File Name:	**I042605**	**Date of Collection:**	**4/25/12 4:25:00 AM**
Dil. Factor:	**1.00**	**Date of Analysis:**	**4/26/12 07:51 AM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)
Hydrogen Sulfide	4.0	Not Detected
Carbonyl Sulfide	4.0	Not Detected
Methyl Mercaptan	4.0	Not Detected
Ethyl Mercaptan	4.0	Not Detected
Dimethyl Sulfide	4.0	Not Detected
Carbon Disulfide	5.0	Not Detected
Isopropyl Mercaptan	4.0	Not Detected
tert-Butyl Mercaptan	4.0	Not Detected
n-Propyl Mercaptan	4.0	Not Detected
Ethyl Methyl Sulfide	4.0	Not Detected
Thiophene	4.0	Not Detected
Isobutyl Mercaptan	4.0	Not Detected
Diethyl Sulfide	4.0	Not Detected
n-Butyl Mercaptan	4.0	Not Detected
Dimethyl Disulfide	4.0	Not Detected
3-Methylthiophene	4.0	Not Detected
Tetrahydrothiophene	4.0	Not Detected
2-Ethylthiophene	4.0	Not Detected
2,5-Dimethylthiophene	4.0	Not Detected
Diethyl Disulfide	4.0	Not Detected

Container Type: 1 Liter Tedlar Bag

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Client Sample ID: EM02APR2512

Lab ID#: 1204547A-02A

SULFUR GASES BY ASTM D-5504 GC/SCD

File Name:	**I042606**	**Date of Collection:**	**4/25/12 4:55:00 AM**
Dil. Factor:	**1.00**	**Date of Analysis:**	**4/26/12 08:15 AM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)
Hydrogen Sulfide	4.0	Not Detected
Carbonyl Sulfide	4.0	Not Detected
Methyl Mercaptan	4.0	Not Detected
Ethyl Mercaptan	4.0	Not Detected
Dimethyl Sulfide	4.0	Not Detected
Carbon Disulfide	5.0	Not Detected
Isopropyl Mercaptan	4.0	Not Detected
tert-Butyl Mercaptan	4.0	Not Detected
n-Propyl Mercaptan	4.0	Not Detected
Ethyl Methyl Sulfide	4.0	Not Detected
Thiophene	4.0	Not Detected
Isobutyl Mercaptan	4.0	Not Detected
Diethyl Sulfide	4.0	Not Detected
n-Butyl Mercaptan	4.0	Not Detected
Dimethyl Disulfide	4.0	Not Detected
3-Methylthiophene	4.0	Not Detected
Tetrahydrothiophene	4.0	Not Detected
2-Ethylthiophene	4.0	Not Detected
2,5-Dimethylthiophene	4.0	Not Detected
Diethyl Disulfide	4.0	Not Detected

Container Type: 1 Liter Tedlar Bag

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Client Sample ID: EM03APR2512

Lab ID#: 1204547A-03A

SULFUR GASES BY ASTM D-5504 GC/SCD

File Name:	**I042607**	**Date of Collection:**	**4/25/12 5:13:00 AM**
Dil. Factor:	**1.00**	**Date of Analysis:**	**4/26/12 08:36 AM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)
Hydrogen Sulfide	4.0	Not Detected
Carbonyl Sulfide	4.0	Not Detected
Methyl Mercaptan	4.0	Not Detected
Ethyl Mercaptan	4.0	Not Detected
Dimethyl Sulfide	4.0	Not Detected
Carbon Disulfide	5.0	Not Detected
Isopropyl Mercaptan	4.0	Not Detected
tert-Butyl Mercaptan	4.0	Not Detected
n-Propyl Mercaptan	4.0	Not Detected
Ethyl Methyl Sulfide	4.0	Not Detected
Thiophene	4.0	Not Detected
Isobutyl Mercaptan	4.0	Not Detected
Diethyl Sulfide	4.0	Not Detected
n-Butyl Mercaptan	4.0	Not Detected
Dimethyl Disulfide	4.0	Not Detected
3-Methylthiophene	4.0	Not Detected
Tetrahydrothiophene	4.0	Not Detected
2-Ethylthiophene	4.0	Not Detected
2,5-Dimethylthiophene	4.0	Not Detected
Diethyl Disulfide	4.0	Not Detected

Container Type: 1 Liter Tedlar Bag

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Client Sample ID: EM04APR2512

Lab ID#: 1204547A-04A

SULFUR GASES BY ASTM D-5504 GC/SCD

File Name:	**I042608**	**Date of Collection:**	**4/25/12 5:22:00 AM**
Dil. Factor:	**1.00**	**Date of Analysis:**	**4/26/12 08:58 AM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)
Hydrogen Sulfide	4.0	Not Detected
Carbonyl Sulfide	4.0	Not Detected
Methyl Mercaptan	4.0	Not Detected
Ethyl Mercaptan	4.0	Not Detected
Dimethyl Sulfide	4.0	Not Detected
Carbon Disulfide	5.0	Not Detected
Isopropyl Mercaptan	4.0	Not Detected
tert-Butyl Mercaptan	4.0	Not Detected
n-Propyl Mercaptan	4.0	Not Detected
Ethyl Methyl Sulfide	4.0	Not Detected
Thiophene	4.0	Not Detected
Isobutyl Mercaptan	4.0	Not Detected
Diethyl Sulfide	4.0	Not Detected
n-Butyl Mercaptan	4.0	Not Detected
Dimethyl Disulfide	4.0	Not Detected
3-Methylthiophene	4.0	Not Detected
Tetrahydrothiophene	4.0	Not Detected
2-Ethylthiophene	4.0	Not Detected
2,5-Dimethylthiophene	4.0	Not Detected
Diethyl Disulfide	4.0	Not Detected

Container Type: 1 Liter Tedlar Bag

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Client Sample ID: EM05APR2512

Lab ID#: 1204547A-05A

SULFUR GASES BY ASTM D-5504 GC/SCD

File Name:	**I042609**	**Date of Collection:**	**4/25/12 5:30:00 AM**
Dil. Factor:	**1.00**	**Date of Analysis:**	**4/26/12 09:20 AM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)
Hydrogen Sulfide	4.0	Not Detected
Carbonyl Sulfide	4.0	Not Detected
Methyl Mercaptan	4.0	Not Detected
Ethyl Mercaptan	4.0	Not Detected
Dimethyl Sulfide	4.0	Not Detected
Carbon Disulfide	5.0	Not Detected
Isopropyl Mercaptan	4.0	Not Detected
tert-Butyl Mercaptan	4.0	Not Detected
n-Propyl Mercaptan	4.0	Not Detected
Ethyl Methyl Sulfide	4.0	Not Detected
Thiophene	4.0	Not Detected
Isobutyl Mercaptan	4.0	Not Detected
Diethyl Sulfide	4.0	Not Detected
n-Butyl Mercaptan	4.0	Not Detected
Dimethyl Disulfide	4.0	Not Detected
3-Methylthiophene	4.0	Not Detected
Tetrahydrothiophene	4.0	Not Detected
2-Ethylthiophene	4.0	Not Detected
2,5-Dimethylthiophene	4.0	Not Detected
Diethyl Disulfide	4.0	Not Detected

Container Type: 1 Liter Tedlar Bag

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Client Sample ID: EM06APR2512

Lab ID#: 1204547A-06A

SULFUR GASES BY ASTM D-5504 GC/SCD

File Name:	**I042610**	**Date of Collection:**	**4/25/12 5:38:00 AM**
Dil. Factor:	**1.00**	**Date of Analysis:**	**4/26/12 09:41 AM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)
Hydrogen Sulfide	4.0	Not Detected
Carbonyl Sulfide	4.0	Not Detected
Methyl Mercaptan	4.0	Not Detected
Ethyl Mercaptan	4.0	Not Detected
Dimethyl Sulfide	4.0	Not Detected
Carbon Disulfide	5.0	Not Detected
Isopropyl Mercaptan	4.0	Not Detected
tert-Butyl Mercaptan	4.0	Not Detected
n-Propyl Mercaptan	4.0	Not Detected
Ethyl Methyl Sulfide	4.0	Not Detected
Thiophene	4.0	Not Detected
Isobutyl Mercaptan	4.0	Not Detected
Diethyl Sulfide	4.0	Not Detected
n-Butyl Mercaptan	4.0	Not Detected
Dimethyl Disulfide	4.0	Not Detected
3-Methylthiophene	4.0	Not Detected
Tetrahydrothiophene	4.0	Not Detected
2-Ethylthiophene	4.0	Not Detected
2,5-Dimethylthiophene	4.0	Not Detected
Diethyl Disulfide	4.0	Not Detected

Container Type: 1 Liter Tedlar Bag

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Client Sample ID: EM07APR2512

Lab ID#: 1204547A-07A

SULFUR GASES BY ASTM D-5504 GC/SCD

File Name:	**I042611**	**Date of Collection:**	**4/25/12 5:48:00 AM**
Dil. Factor:	**1.00**	**Date of Analysis:**	**4/26/12 10:03 AM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)
Hydrogen Sulfide	4.0	Not Detected
Carbonyl Sulfide	4.0	Not Detected
Methyl Mercaptan	4.0	Not Detected
Ethyl Mercaptan	4.0	Not Detected
Dimethyl Sulfide	4.0	Not Detected
Carbon Disulfide	5.0	Not Detected
Isopropyl Mercaptan	4.0	Not Detected
tert-Butyl Mercaptan	4.0	Not Detected
n-Propyl Mercaptan	4.0	Not Detected
Ethyl Methyl Sulfide	4.0	Not Detected
Thiophene	4.0	Not Detected
Isobutyl Mercaptan	4.0	Not Detected
Diethyl Sulfide	4.0	Not Detected
n-Butyl Mercaptan	4.0	Not Detected
Dimethyl Disulfide	4.0	Not Detected
3-Methylthiophene	4.0	Not Detected
Tetrahydrothiophene	4.0	Not Detected
2-Ethylthiophene	4.0	Not Detected
2,5-Dimethylthiophene	4.0	Not Detected
Diethyl Disulfide	4.0	Not Detected

Container Type: 1 Liter Tedlar Bag

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Client Sample ID: EM08APR2512

Lab ID#: 1204547A-08A

SULFUR GASES BY ASTM D-5504 GC/SCD

File Name:	**I042612**	**Date of Collection:**	**4/25/12 5:55:00 AM**
Dil. Factor:	**1.00**	**Date of Analysis:**	**4/26/12 10:25 AM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)
Hydrogen Sulfide	4.0	Not Detected
Carbonyl Sulfide	4.0	Not Detected
Methyl Mercaptan	4.0	Not Detected
Ethyl Mercaptan	4.0	Not Detected
Dimethyl Sulfide	4.0	Not Detected
Carbon Disulfide	5.0	Not Detected
Isopropyl Mercaptan	4.0	Not Detected
tert-Butyl Mercaptan	4.0	Not Detected
n-Propyl Mercaptan	4.0	Not Detected
Ethyl Methyl Sulfide	4.0	Not Detected
Thiophene	4.0	Not Detected
Isobutyl Mercaptan	4.0	Not Detected
Diethyl Sulfide	4.0	Not Detected
n-Butyl Mercaptan	4.0	Not Detected
Dimethyl Disulfide	4.0	Not Detected
3-Methylthiophene	4.0	Not Detected
Tetrahydrothiophene	4.0	Not Detected
2-Ethylthiophene	4.0	Not Detected
2,5-Dimethylthiophene	4.0	Not Detected
Diethyl Disulfide	4.0	Not Detected

Container Type: 1 Liter Tedlar Bag

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Client Sample ID: EM09APR2512

Lab ID#: 1204547A-09A

SULFUR GASES BY ASTM D-5504 GC/SCD

File Name:	**I042613**	**Date of Collection:**	**4/25/12 6:03:00 AM**
Dil. Factor:	**1.00**	**Date of Analysis:**	**4/26/12 10:46 AM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)
Hydrogen Sulfide	4.0	Not Detected
Carbonyl Sulfide	4.0	Not Detected
Methyl Mercaptan	4.0	Not Detected
Ethyl Mercaptan	4.0	Not Detected
Dimethyl Sulfide	4.0	Not Detected
Carbon Disulfide	5.0	Not Detected
Isopropyl Mercaptan	4.0	Not Detected
tert-Butyl Mercaptan	4.0	Not Detected
n-Propyl Mercaptan	4.0	Not Detected
Ethyl Methyl Sulfide	4.0	Not Detected
Thiophene	4.0	Not Detected
Isobutyl Mercaptan	4.0	Not Detected
Diethyl Sulfide	4.0	Not Detected
n-Butyl Mercaptan	4.0	Not Detected
Dimethyl Disulfide	4.0	Not Detected
3-Methylthiophene	4.0	Not Detected
Tetrahydrothiophene	4.0	Not Detected
2-Ethylthiophene	4.0	Not Detected
2,5-Dimethylthiophene	4.0	Not Detected
Diethyl Disulfide	4.0	Not Detected

Container Type: 1 Liter Tedlar Bag

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Client Sample ID: EM11APR2512

Lab ID#: 1204547A-10A

SULFUR GASES BY ASTM D-5504 GC/SCD

File Name:	**I042614**	**Date of Collection:**	**4/25/12 6:43:00 AM**
Dil. Factor:	**1.00**	**Date of Analysis:**	**4/26/12 11:08 AM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)
Hydrogen Sulfide	4.0	Not Detected
Carbonyl Sulfide	4.0	Not Detected
Methyl Mercaptan	4.0	Not Detected
Ethyl Mercaptan	4.0	Not Detected
Dimethyl Sulfide	4.0	Not Detected
Carbon Disulfide	5.0	Not Detected
Isopropyl Mercaptan	4.0	Not Detected
tert-Butyl Mercaptan	4.0	15
n-Propyl Mercaptan	4.0	Not Detected
Ethyl Methyl Sulfide	4.0	6.3
Thiophene	4.0	Not Detected
Isobutyl Mercaptan	4.0	Not Detected
Diethyl Sulfide	4.0	Not Detected
n-Butyl Mercaptan	4.0	Not Detected
Dimethyl Disulfide	4.0	Not Detected
3-Methylthiophene	4.0	Not Detected
Tetrahydrothiophene	4.0	Not Detected
2-Ethylthiophene	4.0	Not Detected
2,5-Dimethylthiophene	4.0	Not Detected
Diethyl Disulfide	4.0	Not Detected

Container Type: 1 Liter Tedlar Bag

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Client Sample ID: EM12APR2512

Lab ID#: 1204547A-11A

SULFUR GASES BY ASTM D-5504 GC/SCD

File Name:	**I042615**	**Date of Collection:**	**4/25/12 6:53:00 AM**
Dil. Factor:	**1.00**	**Date of Analysis:**	**4/26/12 11:30 AM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)
Hydrogen Sulfide	4.0	Not Detected
Carbonyl Sulfide	4.0	Not Detected
Methyl Mercaptan	4.0	Not Detected
Ethyl Mercaptan	4.0	Not Detected
Dimethyl Sulfide	4.0	Not Detected
Carbon Disulfide	5.0	Not Detected
Isopropyl Mercaptan	4.0	Not Detected
tert-Butyl Mercaptan	4.0	17
n-Propyl Mercaptan	4.0	Not Detected
Ethyl Methyl Sulfide	4.0	6.4
Thiophene	4.0	Not Detected
Isobutyl Mercaptan	4.0	Not Detected
Diethyl Sulfide	4.0	Not Detected
n-Butyl Mercaptan	4.0	Not Detected
Dimethyl Disulfide	4.0	Not Detected
3-Methylthiophene	4.0	Not Detected
Tetrahydrothiophene	4.0	Not Detected
2-Ethylthiophene	4.0	Not Detected
2,5-Dimethylthiophene	4.0	Not Detected
Diethyl Disulfide	4.0	Not Detected

Container Type: 1 Liter Tedlar Bag

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Client Sample ID: EM12APR2512

Lab ID#: 1204547A-11B

SULFUR GASES BY ASTM D-5504 GC/SCD

File Name:	**I042724**	**Date of Collection:**	**4/25/12 6:53:00 AM**
Dil. Factor:	**1.00**	**Date of Analysis:**	**4/27/12 03:20 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)
Hydrogen Sulfide	4.0	Not Detected
Carbonyl Sulfide	4.0	Not Detected
Methyl Mercaptan	4.0	Not Detected
Ethyl Mercaptan	4.0	Not Detected
Dimethyl Sulfide	4.0	Not Detected
Carbon Disulfide	5.0	Not Detected
Isopropyl Mercaptan	4.0	Not Detected
tert-Butyl Mercaptan	4.0	23
n-Propyl Mercaptan	4.0	Not Detected
Ethyl Methyl Sulfide	4.0	8.2
Thiophene	4.0	Not Detected
Isobutyl Mercaptan	4.0	Not Detected
Diethyl Sulfide	4.0	Not Detected
n-Butyl Mercaptan	4.0	Not Detected
Dimethyl Disulfide	4.0	Not Detected
3-Methylthiophene	4.0	Not Detected
Tetrahydrothiophene	4.0	Not Detected
2-Ethylthiophene	4.0	Not Detected
2,5-Dimethylthiophene	4.0	Not Detected
Diethyl Disulfide	4.0	Not Detected

Container Type: 1 Liter Tedlar Bag

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Client Sample ID: Lab Blank

Lab ID#: 1204547A-12A

SULFUR GASES BY ASTM D-5504 GC/SCD

File Name:	**I042604**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 4/25/12 07:46 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)
Hydrogen Sulfide	4.0	Not Detected
Carbonyl Sulfide	4.0	Not Detected
Methyl Mercaptan	4.0	Not Detected
Ethyl Mercaptan	4.0	Not Detected
Dimethyl Sulfide	4.0	Not Detected
Carbon Disulfide	5.0	Not Detected
Isopropyl Mercaptan	4.0	Not Detected
tert-Butyl Mercaptan	4.0	Not Detected
n-Propyl Mercaptan	4.0	Not Detected
Ethyl Methyl Sulfide	4.0	Not Detected
Thiophene	4.0	Not Detected
Isobutyl Mercaptan	4.0	Not Detected
Diethyl Sulfide	4.0	Not Detected
n-Butyl Mercaptan	4.0	Not Detected
Dimethyl Disulfide	4.0	Not Detected
3-Methylthiophene	4.0	Not Detected
Tetrahydrothiophene	4.0	Not Detected
2-Ethylthiophene	4.0	Not Detected
2,5-Dimethylthiophene	4.0	Not Detected
Diethyl Disulfide	4.0	Not Detected

Container Type: NA - Not Applicable

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Client Sample ID: Lab Blank

Lab ID#: 1204547A-12B

SULFUR GASES BY ASTM D-5504 GC/SCD

File Name:	**I042704**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 4/26/12 06:48 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)
Hydrogen Sulfide	4.0	Not Detected
Carbonyl Sulfide	4.0	Not Detected
Methyl Mercaptan	4.0	Not Detected
Ethyl Mercaptan	4.0	Not Detected
Dimethyl Sulfide	4.0	Not Detected
Carbon Disulfide	5.0	Not Detected
Isopropyl Mercaptan	4.0	Not Detected
tert-Butyl Mercaptan	4.0	Not Detected
n-Propyl Mercaptan	4.0	Not Detected
Ethyl Methyl Sulfide	4.0	Not Detected
Thiophene	4.0	Not Detected
Isobutyl Mercaptan	4.0	Not Detected
Diethyl Sulfide	4.0	Not Detected
n-Butyl Mercaptan	4.0	Not Detected
Dimethyl Disulfide	4.0	Not Detected
3-Methylthiophene	4.0	Not Detected
Tetrahydrothiophene	4.0	Not Detected
2-Ethylthiophene	4.0	Not Detected
2,5-Dimethylthiophene	4.0	Not Detected
Diethyl Disulfide	4.0	Not Detected

Container Type: NA - Not Applicable

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Client Sample ID: LCS

Lab ID#: 1204547A-13A

SULFUR GASES BY ASTM D-5504 GC/SCD

File Name:	**I042602**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 4/25/12 07:00 PM**	

Compound	%Recovery
Hydrogen Sulfide	81
Carbonyl Sulfide	94
Methyl Mercaptan	94
Ethyl Mercaptan	86
Dimethyl Sulfide	89
Carbon Disulfide	78
Isopropyl Mercaptan	102
tert-Butyl Mercaptan	98
n-Propyl Mercaptan	102
Ethyl Methyl Sulfide	96
Thiophene	93
Isobutyl Mercaptan	96
Diethyl Sulfide	96
n-Butyl Mercaptan	100
Dimethyl Disulfide	91
3-Methylthiophene	85
Tetrahydrothiophene	96
2-Ethylthiophene	90
2,5-Dimethylthiophene	84
Diethyl Disulfide	86

Container Type: NA - Not Applicable

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Client Sample ID: LCSD

Lab ID#: 1204547A-13AA

SULFUR GASES BY ASTM D-5504 GC/SCD

File Name:	**I042603**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 4/25/12 07:22 PM**	

Compound	%Recovery
Hydrogen Sulfide	85
Carbonyl Sulfide	98
Methyl Mercaptan	100
Ethyl Mercaptan	88
Dimethyl Sulfide	92
Carbon Disulfide	83
Isopropyl Mercaptan	105
tert-Butyl Mercaptan	104
n-Propyl Mercaptan	108
Ethyl Methyl Sulfide	103
Thiophene	98
Isobutyl Mercaptan	98
Diethyl Sulfide	102
n-Butyl Mercaptan	105
Dimethyl Disulfide	100
3-Methylthiophene	96
Tetrahydrothiophene	106
2-Ethylthiophene	102
2,5-Dimethylthiophene	95
Diethyl Disulfide	103

Container Type: NA - Not Applicable

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Client Sample ID: LCS

Lab ID#: 1204547A-13B

SULFUR GASES BY ASTM D-5504 GC/SCD

File Name:	**I042702**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 4/26/12 06:01 PM**	

Compound	%Recovery
Hydrogen Sulfide	104
Carbonyl Sulfide	100
Methyl Mercaptan	106
Ethyl Mercaptan	104
Dimethyl Sulfide	96
Carbon Disulfide	84
Isopropyl Mercaptan	108
tert-Butyl Mercaptan	106
n-Propyl Mercaptan	115
Ethyl Methyl Sulfide	106
Thiophene	106
Isobutyl Mercaptan	112
Diethyl Sulfide	110
n-Butyl Mercaptan	128
Dimethyl Disulfide	110
3-Methylthiophene	110
Tetrahydrothiophene	117
2-Ethylthiophene	118
2,5-Dimethylthiophene	113
Diethyl Disulfide	121

Container Type: NA - Not Applicable

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Client Sample ID: LCSD

Lab ID#: 1204547A-13BB

SULFUR GASES BY ASTM D-5504 GC/SCD

File Name:	**I042703**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 4/26/12 06:24 PM**	

Compound	%Recovery
Hydrogen Sulfide	102
Carbonyl Sulfide	97
Methyl Mercaptan	105
Ethyl Mercaptan	102
Dimethyl Sulfide	95
Carbon Disulfide	83
Isopropyl Mercaptan	106
tert-Butyl Mercaptan	106
n-Propyl Mercaptan	116
Ethyl Methyl Sulfide	106
Thiophene	107
Isobutyl Mercaptan	113
Diethyl Sulfide	111
n-Butyl Mercaptan	125
Dimethyl Disulfide	112
3-Methylthiophene	110
Tetrahydrothiophene	117
2-Ethylthiophene	128
2,5-Dimethylthiophene	122
Diethyl Disulfide	132 Q

Q = Exceeds Quality Control limits.

Container Type: NA - Not Applicable

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6/7/2012

Tim Slagle
US EPA Region IV
980 College Station Rd

Athens GA 30605-2720

Project Name: Eight Mile Air Study
Project #: PR-R4-12-00301
Workorder #: 1204547B

Dear Tim Slagle

The following report includes the data for the above referenced project for sample(s) received on 4/26/2012 at Air Toxics Ltd.

The data and associated QC analyzed by Modified ASTM D-1946 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Air Toxics Ltd. for your air analysis needs. Air Toxics Ltd. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,

Ausha Scott

Project Manager

eurofins | Air Toxics

WORK ORDER #: 1204547B

Work Order Summary

CLIENT:	Tim Slagle US EPA Region IV 980 College Station Rd Athens, GA 30605-2720	**BILL TO:**	US EPA Finance Center US EPA Mail Drop D143-02 109 T.W. Alexander Dr. Durham, NC 27711
PHONE:	706-355-8741	**P.O. #**	EP-12-4-000049
FAX:	706-355-8744	**PROJECT #**	PR-R4-12-00301 Eight Mile Air Study
DATE RECEIVED:	04/26/2012	**CONTACT:**	Ausha Scott
DATE COMPLETED:	05/09/2012		

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.	FINAL PRESSURE
01A	EM01APR2512	Modified ASTM D-1946	Tedlar Bag	Tedlar Bag
02A	EM02APR2512	Modified ASTM D-1946	Tedlar Bag	Tedlar Bag
03A	EM03APR2512	Modified ASTM D-1946	Tedlar Bag	Tedlar Bag
04A	EM04APR2512	Modified ASTM D-1946	Tedlar Bag	Tedlar Bag
05A	EM05APR2512	Modified ASTM D-1946	Tedlar Bag	Tedlar Bag
06A	EM06APR2512	Modified ASTM D-1946	Tedlar Bag	Tedlar Bag
07A	EM07APR2512	Modified ASTM D-1946	Tedlar Bag	Tedlar Bag
08A	EM08APR2512	Modified ASTM D-1946	Tedlar Bag	Tedlar Bag
09A	EM09APR2512	Modified ASTM D-1946	Tedlar Bag	Tedlar Bag
10A	EM11APR2512	Modified ASTM D-1946	Tedlar Bag	Tedlar Bag
11A	EM12APR2512	Modified ASTM D-1946	Tedlar Bag	Tedlar Bag
12A	Lab Blank	Modified ASTM D-1946	NA	NA
13A	LCS	Modified ASTM D-1946	NA	NA
13AA	LCSD	Modified ASTM D-1946	NA	NA

CERTIFIED BY: Linda D. Fruman DATE: 05/09/12

Laboratory Director

Certfication numbers: AZ Licensure AZ0719, CA NELAP - 02110CA, LA NELAP - 02089,
NY NELAP - 11291, TX NELAP - T104704434-11-3, UT NELAP -CA009332011-1, WA NELAP - C935
Name of Accrediting Agency: NELAP/Florida Department of Health, Scope of Application: Clean Air Act,
Accreditation number: E87680, Effective date: 07/01/11 , Expiration date: 06/30/12.
Air Toxics Ltd. certifies that the test results contained in this report meet all requirements of the NELAC standards

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
(916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
Modified ASTM D-1946
US EPA Region IV
Workorder# 1204547B

Eleven 1 Liter Tedlar Bag samples were received on April 26, 2012. The laboratory performed analysis via Modified ASTM Method D-1946 for Methane in air using GC/FID. The method involves direct injection of 1.0 mL of sample.

Method modifications taken to run these samples are summarized in the table below. Specific project requirements may over-ride the ATL modifications.

Requirement	***ASTM D-1946***	***ATL Modifications***
Calibration	A single point calibration is performed using a reference standard closely matching the composition of the unknown.	A 3-point calibration curve is performed. Quantitation is based on a daily calibration standard which may or may not resemble the composition of the associated samples.
Reference Standard	The composition of any reference standard must be known to within 0.01 mol % for any component.	The standards used by ATL are blended to a >/= 95% accuracy.
Sample Injection Volume	Components whose concentrations are in excess of 5 % should not be analyzed by using sample volumes greater than 0.5 mL.	The sample container is connected directly to a fixed volume sample loop of 1.0 mL on the GC. Linear range is defined by the calibration curve. Bags are loaded by vacuum.
Normalization	Normalize the mole percent values by multiplying each value by 100 and dividing by the sum of the original values. The sum of the original values should not differ from 100% by more than 1.0%.	Results are not normalized. The sum of the reported values can differ from 100% by as much as 15%, either due to analytical variability or an unusual sample matrix.
Precision	Precision requirements established at each concentration level.	Duplicates should agree within 25% RPD for detections > 5 X's the RL.

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

There were no analytical discrepancies.

Definition of Data Qualifying Flags

Seven qualifiers may have been used on the data analysis sheets and indicate as follows:
B - Compound present in laboratory blank greater than reporting limit.
J - Estimated value.
E - Exceeds instrument calibration range.
S - Saturated peak.
Q - Exceeds quality control limits.
U - Compound analyzed for but not detected above the detection limit.
M - Reported value may be biased due to apparent matrix interferences.
File extensions may have been used on the data analysis sheets and indicates as follows:
a-File was requantified
b-File was quantified by a second column and detector
r1-File was requantified for the purpose of reissue

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Summary of Detected Compounds
NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

Client Sample ID: EM01APR2512

Lab ID#: 1204547B-01A

Compound	Rpt. Limit (%)	Amount (%)
Methane	0.00010	0.00031

Client Sample ID: EM02APR2512

Lab ID#: 1204547B-02A

Compound	Rpt. Limit (%)	Amount (%)
Methane	0.00010	0.00042

Client Sample ID: EM03APR2512

Lab ID#: 1204547B-03A

Compound	Rpt. Limit (%)	Amount (%)
Methane	0.00010	0.00027

Client Sample ID: EM04APR2512

Lab ID#: 1204547B-04A

Compound	Rpt. Limit (%)	Amount (%)
Methane	0.00010	0.00024

Client Sample ID: EM05APR2512

Lab ID#: 1204547B-05A

Compound	Rpt. Limit (%)	Amount (%)
Methane	0.00010	0.00020

Client Sample ID: EM06APR2512

Lab ID#: 1204547B-06A

Compound	Rpt. Limit (%)	Amount (%)
Methane	0.00010	0.00022

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Summary of Detected Compounds
NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

Client Sample ID: EM07APR2512

Lab ID#: 1204547B-07A

Compound	Rpt. Limit (%)	Amount (%)
Methane	0.00010	0.00022

Client Sample ID: EM08APR2512

Lab ID#: 1204547B-08A

Compound	Rpt. Limit (%)	Amount (%)
Methane	0.00010	0.00022

Client Sample ID: EM09APR2512

Lab ID#: 1204547B-09A

Compound	Rpt. Limit (%)	Amount (%)
Methane	0.00010	0.00022

Client Sample ID: EM11APR2512

Lab ID#: 1204547B-10A

Compound	Rpt. Limit (%)	Amount (%)
Methane	0.00010	0.00020

Client Sample ID: EM12APR2512

Lab ID#: 1204547B-11A

Compound	Rpt. Limit (%)	Amount (%)
Methane	0.00010	0.00022

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Client Sample ID: EM01APR2512

Lab ID#: 1204547B-01A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9042810**	**Date of Collection: 4/25/12 4:25:00 AM**	
Dil. Factor:	**1.00**	**Date of Analysis: 4/28/12 10:24 AM**	

Compound	**Rpt. Limit (%)**	**Amount (%)**
Methane	0.00010	0.00031

Container Type: 1 Liter Tedlar Bag

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Client Sample ID: EM02APR2512

Lab ID#: 1204547B-02A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9042809**	**Date of Collection: 4/25/12 4:55:00 AM**	
Dil. Factor:	**1.00**	**Date of Analysis: 4/28/12 10:02 AM**	

Compound	**Rpt. Limit (%)**	**Amount (%)**
Methane	0.00010	0.00042

Container Type: 1 Liter Tedlar Bag

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Client Sample ID: EM03APR2512

Lab ID#: 1204547B-03A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9042811**	**Date of Collection: 4/25/12 5:13:00 AM**	
Dil. Factor:	**1.00**	**Date of Analysis: 4/28/12 10:50 AM**	

Compound	**Rpt. Limit (%)**	**Amount (%)**
Methane	0.00010	0.00027

Container Type: 1 Liter Tedlar Bag

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Client Sample ID: EM04APR2512

Lab ID#: 1204547B-04A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9042812**	**Date of Collection: 4/25/12 5:22:00 AM**	
Dil. Factor:	**1.00**	**Date of Analysis: 4/28/12 11:12 AM**	

Compound	Rpt. Limit (%)	Amount (%)
Methane	0.00010	0.00024

Container Type: 1 Liter Tedlar Bag

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Client Sample ID: EM05APR2512

Lab ID#: 1204547B-05A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9042813**	**Date of Collection: 4/25/12 5:30:00 AM**	
Dil. Factor:	**1.00**	**Date of Analysis: 4/28/12 11:37 AM**	

Compound	Rpt. Limit (%)	Amount (%)
Methane	0.00010	0.00020

Container Type: 1 Liter Tedlar Bag

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Client Sample ID: EM06APR2512

Lab ID#: 1204547B-06A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9042814**	**Date of Collection: 4/25/12 5:38:00 AM**	
Dil. Factor:	**1.00**	**Date of Analysis: 4/28/12 11:58 AM**	

Compound	Rpt. Limit (%)	Amount (%)
Methane	0.00010	0.00022

Container Type: 1 Liter Tedlar Bag

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Client Sample ID: EM07APR2512

Lab ID#: 1204547B-07A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9042815**	**Date of Collection: 4/25/12 5:48:00 AM**	
Dil. Factor:	**1.00**	**Date of Analysis: 4/28/12 12:20 PM**	

Compound	Rpt. Limit (%)	Amount (%)
Methane	0.00010	0.00022

Container Type: 1 Liter Tedlar Bag

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Client Sample ID: EM08APR2512

Lab ID#: 1204547B-08A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9042816**	**Date of Collection: 4/25/12 5:55:00 AM**	
Dil. Factor:	**1.00**	**Date of Analysis: 4/28/12 12:42 PM**	

Compound	**Rpt. Limit (%)**	**Amount (%)**
Methane	0.00010	0.00022

Container Type: 1 Liter Tedlar Bag

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Client Sample ID: EM09APR2512

Lab ID#: 1204547B-09A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9042817**	**Date of Collection: 4/25/12 6:03:00 AM**	
Dil. Factor:	**1.00**	**Date of Analysis: 4/28/12 01:04 PM**	

Compound	Rpt. Limit (%)	Amount (%)
Methane	0.00010	0.00022

Container Type: 1 Liter Tedlar Bag

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Client Sample ID: EM11APR2512

Lab ID#: 1204547B-10A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9042818**	**Date of Collection: 4/25/12 6:43:00 AM**	
Dil. Factor:	**1.00**	**Date of Analysis: 4/28/12 01:29 PM**	

Compound	Rpt. Limit (%)	Amount (%)
Methane	0.00010	0.00020

Container Type: 1 Liter Tedlar Bag

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Client Sample ID: EM12APR2512

Lab ID#: 1204547B-11A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9042819**	**Date of Collection: 4/25/12 6:53:00 AM**	
Dil. Factor:	**1.00**	**Date of Analysis: 4/28/12 01:51 PM**	

Compound	Rpt. Limit (%)	Amount (%)
Methane	0.00010	0.00022

Container Type: 1 Liter Tedlar Bag

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Client Sample ID: Lab Blank

Lab ID#: 1204547B-12A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9042804**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 4/27/12 09:48 PM**	

Compound	**Rpt. Limit (%)**	**Amount (%)**
Methane	0.00010	Not Detected

Container Type: NA - Not Applicable

eurofins | Air Toxics

Client Sample ID: LCS

Lab ID#: 1204547B-13A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9042802**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 4/27/12 09:03 PM**	

Compound	%Recovery
Methane	99

Container Type: NA - Not Applicable

eurofins | Air Toxics

Client Sample ID: LCSD

Lab ID#: 1204547B-13AA

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9042826**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 4/28/12 04:27 PM**	

Compound	%Recovery
Methane	99

Container Type: NA - Not Applicable

eurofins | Air Toxics

6/7/2012

Tim Slagle
US EPA Region IV
980 College Station Rd

Athens GA 30605-2720

Project Name: Eight Mile Air Study
Project #: PR-R4-12-00301
Workorder #: 1204580A

Dear Tim Slagle

The following report includes the data for the above referenced project for sample(s) received on 4/27/2012 at Air Toxics Ltd.

The data and associated QC analyzed by ASTM D-5504 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Air Toxics Ltd. for your air analysis needs. Air Toxics Ltd. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,

Ausha Scott

Project Manager

eurofins | Air Toxics

WORK ORDER #: 1204580A

Work Order Summary

CLIENT:	Tim Slagle US EPA Region IV 980 College Station Rd Athens, GA 30605-2720	**BILL TO:**	US EPA Finance Center US EPA Mail Drop D143-02 109 T.W. Alexander Dr. Durham, NC 27711
PHONE:	706-355-8741	**P.O. #**	EP-12-4-000049
FAX:	706-355-8744	**PROJECT #**	PR-R4-12-00301 Eight Mile Air Study
DATE RECEIVED:	04/27/2012	**CONTACT:**	Ausha Scott
DATE COMPLETED:	05/02/2012		

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.	FINAL PRESSURE
01A	EM01APR2612	ASTM D-5504	Tedlar Bag	Tedlar Bag
02A	EM02APR2612	ASTM D-5504	Tedlar Bag	Tedlar Bag
03A	EM03APR2612	ASTM D-5504	Tedlar Bag	Tedlar Bag
04A	EM04APR2612	ASTM D-5504	Tedlar Bag	Tedlar Bag
05A	EM05APR2612	ASTM D-5504	Tedlar Bag	Tedlar Bag
06A	EM06APR2612	ASTM D-5504	Tedlar Bag	Tedlar Bag
07A	EM07APR2612	ASTM D-5504	Tedlar Bag	Tedlar Bag
08A	EM08APR2612	ASTM D-5504	Tedlar Bag	Tedlar Bag
09A	EM09APR2612	ASTM D-5504	Tedlar Bag	Tedlar Bag
10A	EM13APR2612	ASTM D-5504	Tedlar Bag	Tedlar Bag
11A	EM14APR2612	ASTM D-5504	Tedlar Bag	Tedlar Bag
12A	Lab Blank	ASTM D-5504	NA	NA
13A	LCS	ASTM D-5504	NA	NA
13AA	LCSD	ASTM D-5504	NA	NA

CERTIFIED BY: Linda D. Frumarx DATE: 05/02/12

Laboratory Director

Certfication numbers: AZ Licensure AZ0719, CA NELAP - 02110CA, LA NELAP - 02089,
NY NELAP - 11291, TX NELAP - T104704434-11-3, UT NELAP -CA009332011-1, WA NELAP - C935
Name of Accrediting Agency: NELAP/Florida Department of Health, Scope of Application: Clean Air Act,
Accreditation number: E87680, Effective date: 07/01/11 , Expiration date: 06/30/12.
Air Toxics Ltd. certifies that the test results contained in this report meet all requirements of the NELAC standards

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
(916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
ASTM D-5504
US EPA Region IV
Workorder# 1204580A

Eleven 1 Liter Tedlar Bag samples were received on April 27, 2012. The laboratory performed the analysis of sulfur compounds via ASTM D-5504 using GC/SCD. The method involves direct injection of the air sample into the GC via a fixed 2.0 mL sampling loop. See the data sheets for the reporting limits for each compound.

Receiving Notes

Samples were received past the recommended hold time of 24 hours. Analysis proceeded.

Analytical Notes

An end check was analyzed to verify the stability of the analytical system after sample analysis. The recovery of the End Check was biased low for Hydrogen Sulfide, Ethyl Mercaptan and Carbon Disulfide. Positive results for the associated compounds in all samples may also exhibit low bias.

The recovery for Diethyl Disulfide in the LCSD was outside the laboratory control limits.

Definition of Data Qualifying Flags

Seven qualifiers may have been used on the data analysis sheets and indicate as follows:
B - Compound present in laboratory blank greater than reporting limit.
J - Estimated value.
E - Exceeds instrument calibration range.
S - Saturated peak.
Q - Exceeds quality control limits.
U - Compound analyzed for but not detected above the detection limit.
M - Reported value may be biased due to apparent matrix interferences.
File extensions may have been used on the data analysis sheets and indicates as follows:
a-File was requantified
b-File was quantified by a second column and detector
r1-File was requantified for the purpose of reissue

eurofins | Air Toxics

Summary of Detected Compounds
SULFUR GASES BY ASTM D-5504 GC/SCD

Client Sample ID: EM01APR2612

Lab ID#: 1204580A-01A

No Detections Were Found.

Client Sample ID: EM02APR2612

Lab ID#: 1204580A-02A

No Detections Were Found.

Client Sample ID: EM03APR2612

Lab ID#: 1204580A-03A

No Detections Were Found.

Client Sample ID: EM04APR2612

Lab ID#: 1204580A-04A

No Detections Were Found.

Client Sample ID: EM05APR2612

Lab ID#: 1204580A-05A

No Detections Were Found.

Client Sample ID: EM06APR2612

Lab ID#: 1204580A-06A

No Detections Were Found.

Client Sample ID: EM07APR2612

Lab ID#: 1204580A-07A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)
tert-Butyl Mercaptan	4.0	4.1

Client Sample ID: EM08APR2612

Lab ID#: 1204580A-08A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)

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Summary of Detected Compounds
SULFUR GASES BY ASTM D-5504 GC/SCD

Client Sample ID: EM08APR2612

Lab ID#: 1204580A-08A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)
tert-Butyl Mercaptan	4.0	8.9

Client Sample ID: EM09APR2612

Lab ID#: 1204580A-09A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)
tert-Butyl Mercaptan	4.0	10

Client Sample ID: EM13APR2612

Lab ID#: 1204580A-10A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)
tert-Butyl Mercaptan	4.0	230
Ethyl Methyl Sulfide	4.0	72

Client Sample ID: EM14APR2612

Lab ID#: 1204580A-11A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)
tert-Butyl Mercaptan	4.0	220
Ethyl Methyl Sulfide	4.0	70
Diethyl Sulfide	4.0	33

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Client Sample ID: EM01APR2612

Lab ID#: 1204580A-01A

SULFUR GASES BY ASTM D-5504 GC/SCD

File Name:	**I042709**	**Date of Collection:**	**4/26/12 4:27:00 AM**
Dil. Factor:	**1.00**	**Date of Analysis:**	**4/27/12 07:47 AM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)
Hydrogen Sulfide	4.0	Not Detected
Carbonyl Sulfide	4.0	Not Detected
Methyl Mercaptan	4.0	Not Detected
Ethyl Mercaptan	4.0	Not Detected
Dimethyl Sulfide	4.0	Not Detected
Carbon Disulfide	5.0	Not Detected
Isopropyl Mercaptan	4.0	Not Detected
tert-Butyl Mercaptan	4.0	Not Detected
n-Propyl Mercaptan	4.0	Not Detected
Ethyl Methyl Sulfide	4.0	Not Detected
Thiophene	4.0	Not Detected
Isobutyl Mercaptan	4.0	Not Detected
Diethyl Sulfide	4.0	Not Detected
n-Butyl Mercaptan	4.0	Not Detected
Dimethyl Disulfide	4.0	Not Detected
3-Methylthiophene	4.0	Not Detected
Tetrahydrothiophene	4.0	Not Detected
2-Ethylthiophene	4.0	Not Detected
2,5-Dimethylthiophene	4.0	Not Detected
Diethyl Disulfide	4.0	Not Detected

Container Type: 1 Liter Tedlar Bag

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Client Sample ID: EM02APR2612

Lab ID#: 1204580A-02A

SULFUR GASES BY ASTM D-5504 GC/SCD

File Name:	**I042710**	**Date of Collection:**	**4/26/12 4:57:00 AM**
Dil. Factor:	**1.00**	**Date of Analysis:**	**4/27/12 08:13 AM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)
Hydrogen Sulfide	4.0	Not Detected
Carbonyl Sulfide	4.0	Not Detected
Methyl Mercaptan	4.0	Not Detected
Ethyl Mercaptan	4.0	Not Detected
Dimethyl Sulfide	4.0	Not Detected
Carbon Disulfide	5.0	Not Detected
Isopropyl Mercaptan	4.0	Not Detected
tert-Butyl Mercaptan	4.0	Not Detected
n-Propyl Mercaptan	4.0	Not Detected
Ethyl Methyl Sulfide	4.0	Not Detected
Thiophene	4.0	Not Detected
Isobutyl Mercaptan	4.0	Not Detected
Diethyl Sulfide	4.0	Not Detected
n-Butyl Mercaptan	4.0	Not Detected
Dimethyl Disulfide	4.0	Not Detected
3-Methylthiophene	4.0	Not Detected
Tetrahydrothiophene	4.0	Not Detected
2-Ethylthiophene	4.0	Not Detected
2,5-Dimethylthiophene	4.0	Not Detected
Diethyl Disulfide	4.0	Not Detected

Container Type: 1 Liter Tedlar Bag

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Client Sample ID: EM03APR2612

Lab ID#: 1204580A-03A

SULFUR GASES BY ASTM D-5504 GC/SCD

File Name:	**I042711**	**Date of Collection:**	**4/26/12 5:06:00 AM**
Dil. Factor:	**1.00**	**Date of Analysis:**	**4/27/12 08:34 AM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)
Hydrogen Sulfide	4.0	Not Detected
Carbonyl Sulfide	4.0	Not Detected
Methyl Mercaptan	4.0	Not Detected
Ethyl Mercaptan	4.0	Not Detected
Dimethyl Sulfide	4.0	Not Detected
Carbon Disulfide	5.0	Not Detected
Isopropyl Mercaptan	4.0	Not Detected
tert-Butyl Mercaptan	4.0	Not Detected
n-Propyl Mercaptan	4.0	Not Detected
Ethyl Methyl Sulfide	4.0	Not Detected
Thiophene	4.0	Not Detected
Isobutyl Mercaptan	4.0	Not Detected
Diethyl Sulfide	4.0	Not Detected
n-Butyl Mercaptan	4.0	Not Detected
Dimethyl Disulfide	4.0	Not Detected
3-Methylthiophene	4.0	Not Detected
Tetrahydrothiophene	4.0	Not Detected
2-Ethylthiophene	4.0	Not Detected
2,5-Dimethylthiophene	4.0	Not Detected
Diethyl Disulfide	4.0	Not Detected

Container Type: 1 Liter Tedlar Bag

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Client Sample ID: EM04APR2612

Lab ID#: 1204580A-04A

SULFUR GASES BY ASTM D-5504 GC/SCD

File Name:	**I042712**	**Date of Collection:**	**4/26/12 5:21:00 AM**
Dil. Factor:	**1.00**	**Date of Analysis:**	**4/27/12 08:56 AM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)
Hydrogen Sulfide	4.0	Not Detected
Carbonyl Sulfide	4.0	Not Detected
Methyl Mercaptan	4.0	Not Detected
Ethyl Mercaptan	4.0	Not Detected
Dimethyl Sulfide	4.0	Not Detected
Carbon Disulfide	5.0	Not Detected
Isopropyl Mercaptan	4.0	Not Detected
tert-Butyl Mercaptan	4.0	Not Detected
n-Propyl Mercaptan	4.0	Not Detected
Ethyl Methyl Sulfide	4.0	Not Detected
Thiophene	4.0	Not Detected
Isobutyl Mercaptan	4.0	Not Detected
Diethyl Sulfide	4.0	Not Detected
n-Butyl Mercaptan	4.0	Not Detected
Dimethyl Disulfide	4.0	Not Detected
3-Methylthiophene	4.0	Not Detected
Tetrahydrothiophene	4.0	Not Detected
2-Ethylthiophene	4.0	Not Detected
2,5-Dimethylthiophene	4.0	Not Detected
Diethyl Disulfide	4.0	Not Detected

Container Type: 1 Liter Tedlar Bag

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Client Sample ID: EM05APR2612

Lab ID#: 1204580A-05A

SULFUR GASES BY ASTM D-5504 GC/SCD

File Name:	**I042713**	**Date of Collection:**	**4/26/12 5:33:00 AM**
Dil. Factor:	**1.00**	**Date of Analysis:**	**4/27/12 09:17 AM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)
Hydrogen Sulfide	4.0	Not Detected
Carbonyl Sulfide	4.0	Not Detected
Methyl Mercaptan	4.0	Not Detected
Ethyl Mercaptan	4.0	Not Detected
Dimethyl Sulfide	4.0	Not Detected
Carbon Disulfide	5.0	Not Detected
Isopropyl Mercaptan	4.0	Not Detected
tert-Butyl Mercaptan	4.0	Not Detected
n-Propyl Mercaptan	4.0	Not Detected
Ethyl Methyl Sulfide	4.0	Not Detected
Thiophene	4.0	Not Detected
Isobutyl Mercaptan	4.0	Not Detected
Diethyl Sulfide	4.0	Not Detected
n-Butyl Mercaptan	4.0	Not Detected
Dimethyl Disulfide	4.0	Not Detected
3-Methylthiophene	4.0	Not Detected
Tetrahydrothiophene	4.0	Not Detected
2-Ethylthiophene	4.0	Not Detected
2,5-Dimethylthiophene	4.0	Not Detected
Diethyl Disulfide	4.0	Not Detected

Container Type: 1 Liter Tedlar Bag

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Client Sample ID: EM06APR2612

Lab ID#: 1204580A-06A

SULFUR GASES BY ASTM D-5504 GC/SCD

File Name:	**I042714**	**Date of Collection:**	**4/26/12 5:42:00 AM**
Dil. Factor:	**1.00**	**Date of Analysis:**	**4/27/12 09:39 AM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)
Hydrogen Sulfide	4.0	Not Detected
Carbonyl Sulfide	4.0	Not Detected
Methyl Mercaptan	4.0	Not Detected
Ethyl Mercaptan	4.0	Not Detected
Dimethyl Sulfide	4.0	Not Detected
Carbon Disulfide	5.0	Not Detected
Isopropyl Mercaptan	4.0	Not Detected
tert-Butyl Mercaptan	4.0	Not Detected
n-Propyl Mercaptan	4.0	Not Detected
Ethyl Methyl Sulfide	4.0	Not Detected
Thiophene	4.0	Not Detected
Isobutyl Mercaptan	4.0	Not Detected
Diethyl Sulfide	4.0	Not Detected
n-Butyl Mercaptan	4.0	Not Detected
Dimethyl Disulfide	4.0	Not Detected
3-Methylthiophene	4.0	Not Detected
Tetrahydrothiophene	4.0	Not Detected
2-Ethylthiophene	4.0	Not Detected
2,5-Dimethylthiophene	4.0	Not Detected
Diethyl Disulfide	4.0	Not Detected

Container Type: 1 Liter Tedlar Bag

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Client Sample ID: EM07APR2612

Lab ID#: 1204580A-07A

SULFUR GASES BY ASTM D-5504 GC/SCD

File Name:	**I042715**	**Date of Collection:**	**4/26/12 5:53:00 AM**
Dil. Factor:	**1.00**	**Date of Analysis:**	**4/27/12 10:00 AM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)
Hydrogen Sulfide	4.0	Not Detected
Carbonyl Sulfide	4.0	Not Detected
Methyl Mercaptan	4.0	Not Detected
Ethyl Mercaptan	4.0	Not Detected
Dimethyl Sulfide	4.0	Not Detected
Carbon Disulfide	5.0	Not Detected
Isopropyl Mercaptan	4.0	Not Detected
tert-Butyl Mercaptan	4.0	4.1
n-Propyl Mercaptan	4.0	Not Detected
Ethyl Methyl Sulfide	4.0	Not Detected
Thiophene	4.0	Not Detected
Isobutyl Mercaptan	4.0	Not Detected
Diethyl Sulfide	4.0	Not Detected
n-Butyl Mercaptan	4.0	Not Detected
Dimethyl Disulfide	4.0	Not Detected
3-Methylthiophene	4.0	Not Detected
Tetrahydrothiophene	4.0	Not Detected
2-Ethylthiophene	4.0	Not Detected
2,5-Dimethylthiophene	4.0	Not Detected
Diethyl Disulfide	4.0	Not Detected

Container Type: 1 Liter Tedlar Bag

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Client Sample ID: EM08APR2612

Lab ID#: 1204580A-08A

SULFUR GASES BY ASTM D-5504 GC/SCD

File Name:	**I042716**	**Date of Collection:**	**4/26/12 6:00:00 AM**
Dil. Factor:	**1.00**	**Date of Analysis:**	**4/27/12 10:21 AM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)
Hydrogen Sulfide	4.0	Not Detected
Carbonyl Sulfide	4.0	Not Detected
Methyl Mercaptan	4.0	Not Detected
Ethyl Mercaptan	4.0	Not Detected
Dimethyl Sulfide	4.0	Not Detected
Carbon Disulfide	5.0	Not Detected
Isopropyl Mercaptan	4.0	Not Detected
tert-Butyl Mercaptan	4.0	8.9
n-Propyl Mercaptan	4.0	Not Detected
Ethyl Methyl Sulfide	4.0	Not Detected
Thiophene	4.0	Not Detected
Isobutyl Mercaptan	4.0	Not Detected
Diethyl Sulfide	4.0	Not Detected
n-Butyl Mercaptan	4.0	Not Detected
Dimethyl Disulfide	4.0	Not Detected
3-Methylthiophene	4.0	Not Detected
Tetrahydrothiophene	4.0	Not Detected
2-Ethylthiophene	4.0	Not Detected
2,5-Dimethylthiophene	4.0	Not Detected
Diethyl Disulfide	4.0	Not Detected

Container Type: 1 Liter Tedlar Bag

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Client Sample ID: EM09APR2612

Lab ID#: 1204580A-09A

SULFUR GASES BY ASTM D-5504 GC/SCD

File Name:	**I042717**	**Date of Collection:**	**4/26/12 6:07:00 AM**
Dil. Factor:	**1.00**	**Date of Analysis:**	**4/27/12 10:42 AM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)
Hydrogen Sulfide	4.0	Not Detected
Carbonyl Sulfide	4.0	Not Detected
Methyl Mercaptan	4.0	Not Detected
Ethyl Mercaptan	4.0	Not Detected
Dimethyl Sulfide	4.0	Not Detected
Carbon Disulfide	5.0	Not Detected
Isopropyl Mercaptan	4.0	Not Detected
tert-Butyl Mercaptan	4.0	10
n-Propyl Mercaptan	4.0	Not Detected
Ethyl Methyl Sulfide	4.0	Not Detected
Thiophene	4.0	Not Detected
Isobutyl Mercaptan	4.0	Not Detected
Diethyl Sulfide	4.0	Not Detected
n-Butyl Mercaptan	4.0	Not Detected
Dimethyl Disulfide	4.0	Not Detected
3-Methylthiophene	4.0	Not Detected
Tetrahydrothiophene	4.0	Not Detected
2-Ethylthiophene	4.0	Not Detected
2,5-Dimethylthiophene	4.0	Not Detected
Diethyl Disulfide	4.0	Not Detected

Container Type: 1 Liter Tedlar Bag

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Client Sample ID: EM13APR2612

Lab ID#: 1204580A-10A

SULFUR GASES BY ASTM D-5504 GC/SCD

File Name:	**I042718**	**Date of Collection:**	**4/26/12 7:39:00 AM**
Dil. Factor:	**1.00**	**Date of Analysis:**	**4/27/12 11:10 AM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)
Hydrogen Sulfide	4.0	Not Detected
Carbonyl Sulfide	4.0	Not Detected
Methyl Mercaptan	4.0	Not Detected
Ethyl Mercaptan	4.0	Not Detected
Dimethyl Sulfide	4.0	Not Detected
Carbon Disulfide	5.0	Not Detected
Isopropyl Mercaptan	4.0	Not Detected
tert-Butyl Mercaptan	4.0	230
n-Propyl Mercaptan	4.0	Not Detected
Ethyl Methyl Sulfide	4.0	72
Thiophene	4.0	Not Detected
Isobutyl Mercaptan	4.0	Not Detected
Diethyl Sulfide	4.0	Not Detected
n-Butyl Mercaptan	4.0	Not Detected
Dimethyl Disulfide	4.0	Not Detected
3-Methylthiophene	4.0	Not Detected
Tetrahydrothiophene	4.0	Not Detected
2-Ethylthiophene	4.0	Not Detected
2,5-Dimethylthiophene	4.0	Not Detected
Diethyl Disulfide	4.0	Not Detected

Container Type: 1 Liter Tedlar Bag

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Client Sample ID: EM14APR2612

Lab ID#: 1204580A-11A

SULFUR GASES BY ASTM D-5504 GC/SCD

File Name:	**I042719**	**Date of Collection:**	**4/26/12 7:49:00 AM**
Dil. Factor:	**1.00**	**Date of Analysis:**	**4/27/12 11:33 AM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)
Hydrogen Sulfide	4.0	Not Detected
Carbonyl Sulfide	4.0	Not Detected
Methyl Mercaptan	4.0	Not Detected
Ethyl Mercaptan	4.0	Not Detected
Dimethyl Sulfide	4.0	Not Detected
Carbon Disulfide	5.0	Not Detected
Isopropyl Mercaptan	4.0	Not Detected
tert-Butyl Mercaptan	4.0	220
n-Propyl Mercaptan	4.0	Not Detected
Ethyl Methyl Sulfide	4.0	70
Thiophene	4.0	Not Detected
Isobutyl Mercaptan	4.0	Not Detected
Diethyl Sulfide	4.0	33
n-Butyl Mercaptan	4.0	Not Detected
Dimethyl Disulfide	4.0	Not Detected
3-Methylthiophene	4.0	Not Detected
Tetrahydrothiophene	4.0	Not Detected
2-Ethylthiophene	4.0	Not Detected
2,5-Dimethylthiophene	4.0	Not Detected
Diethyl Disulfide	4.0	Not Detected

Container Type: 1 Liter Tedlar Bag

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Client Sample ID: Lab Blank

Lab ID#: 1204580A-12A

SULFUR GASES BY ASTM D-5504 GC/SCD

File Name:	**I042704**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 4/26/12 06:48 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)
Hydrogen Sulfide	4.0	Not Detected
Carbonyl Sulfide	4.0	Not Detected
Methyl Mercaptan	4.0	Not Detected
Ethyl Mercaptan	4.0	Not Detected
Dimethyl Sulfide	4.0	Not Detected
Carbon Disulfide	5.0	Not Detected
Isopropyl Mercaptan	4.0	Not Detected
tert-Butyl Mercaptan	4.0	Not Detected
n-Propyl Mercaptan	4.0	Not Detected
Ethyl Methyl Sulfide	4.0	Not Detected
Thiophene	4.0	Not Detected
Isobutyl Mercaptan	4.0	Not Detected
Diethyl Sulfide	4.0	Not Detected
n-Butyl Mercaptan	4.0	Not Detected
Dimethyl Disulfide	4.0	Not Detected
3-Methylthiophene	4.0	Not Detected
Tetrahydrothiophene	4.0	Not Detected
2-Ethylthiophene	4.0	Not Detected
2,5-Dimethylthiophene	4.0	Not Detected
Diethyl Disulfide	4.0	Not Detected

Container Type: NA - Not Applicable

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Client Sample ID: LCS

Lab ID#: 1204580A-13A

SULFUR GASES BY ASTM D-5504 GC/SCD

File Name:	**I042702**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 4/26/12 06:01 PM**	

Compound	%Recovery
Hydrogen Sulfide	104
Carbonyl Sulfide	100
Methyl Mercaptan	106
Ethyl Mercaptan	104
Dimethyl Sulfide	96
Carbon Disulfide	84
Isopropyl Mercaptan	108
tert-Butyl Mercaptan	106
n-Propyl Mercaptan	115
Ethyl Methyl Sulfide	106
Thiophene	106
Isobutyl Mercaptan	112
Diethyl Sulfide	110
n-Butyl Mercaptan	128
Dimethyl Disulfide	110
3-Methylthiophene	110
Tetrahydrothiophene	117
2-Ethylthiophene	118
2,5-Dimethylthiophene	113
Diethyl Disulfide	121

Container Type: NA - Not Applicable

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Client Sample ID: LCSD

Lab ID#: 1204580A-13AA

SULFUR GASES BY ASTM D-5504 GC/SCD

File Name:	**I042703**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 4/26/12 06:24 PM**	

Compound	%Recovery
Hydrogen Sulfide	102
Carbonyl Sulfide	97
Methyl Mercaptan	105
Ethyl Mercaptan	102
Dimethyl Sulfide	95
Carbon Disulfide	83
Isopropyl Mercaptan	106
tert-Butyl Mercaptan	106
n-Propyl Mercaptan	115
Ethyl Methyl Sulfide	106
Thiophene	107
Isobutyl Mercaptan	113
Diethyl Sulfide	111
n-Butyl Mercaptan	125
Dimethyl Disulfide	112
3-Methylthiophene	110
Tetrahydrothiophene	117
2-Ethylthiophene	128
2,5-Dimethylthiophene	122
Diethyl Disulfide	132 Q

Q = Exceeds Quality Control limits.

Container Type: NA - Not Applicable

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6/7/2012

Tim Slagle
US EPA Region IV
980 College Station Rd

Athens GA 30605-2720

Project Name: Eight Mile Air Study
Project #: PR-R4-12-00301
Workorder #: 1204580B

Dear Tim Slagle

The following report includes the data for the above referenced project for sample(s) received on 4/27/2012 at Air Toxics Ltd.

The data and associated QC analyzed by Modified ASTM D-1946 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Air Toxics Ltd. for your air analysis needs. Air Toxics Ltd. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,

Ausha Scott

Project Manager

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WORK ORDER #: 1204580B

Work Order Summary

CLIENT:	Tim Slagle US EPA Region IV 980 College Station Rd Athens, GA 30605-2720	**BILL TO:**	US EPA Finance Center US EPA Mail Drop D143-02 109 T.W. Alexander Dr. Durham, NC 27711
PHONE:	706-355-8741	**P.O. #**	EP-12-4-000049
FAX:	706-355-8744	**PROJECT #**	PR-R4-12-00301 Eight Mile Air Study
DATE RECEIVED:	04/27/2012	**CONTACT:**	Ausha Scott
DATE COMPLETED:	05/09/2012		

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.	FINAL PRESSURE
01A	EM01APR2612	Modified ASTM D-1946	Tedlar Bag	Tedlar Bag
02A	EM02APR2612	Modified ASTM D-1946	Tedlar Bag	Tedlar Bag
03A	EM03APR2612	Modified ASTM D-1946	Tedlar Bag	Tedlar Bag
04A	EM04APR2612	Modified ASTM D-1946	Tedlar Bag	Tedlar Bag
05A	EM05APR2612	Modified ASTM D-1946	Tedlar Bag	Tedlar Bag
06A	EM06APR2612	Modified ASTM D-1946	Tedlar Bag	Tedlar Bag
07A	EM07APR2612	Modified ASTM D-1946	Tedlar Bag	Tedlar Bag
08A	EM08APR2612	Modified ASTM D-1946	Tedlar Bag	Tedlar Bag
09A	EM09APR2612	Modified ASTM D-1946	Tedlar Bag	Tedlar Bag
10A	EM13APR2612	Modified ASTM D-1946	Tedlar Bag	Tedlar Bag
11A	EM14APR2612	Modified ASTM D-1946	Tedlar Bag	Tedlar Bag
12A	Lab Blank	Modified ASTM D-1946	NA	NA
13A	LCS	Modified ASTM D-1946	NA	NA
13AA	LCSD	Modified ASTM D-1946	NA	NA

CERTIFIED BY: Linda D. Frumarx DATE: 05/09/12

Laboratory Director

Certfication numbers: AZ Licensure AZ0719, CA NELAP - 02110CA, LA NELAP - 02089,
NY NELAP - 11291, TX NELAP - T104704434-11-3, UT NELAP -CA009332011-1, WA NELAP - C935
Name of Accrediting Agency: NELAP/Florida Department of Health, Scope of Application: Clean Air Act,
Accreditation number: E87680, Effective date: 07/01/11 , Expiration date: 06/30/12.
Air Toxics Ltd. certifies that the test results contained in this report meet all requirements of the NELAC standards

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
(916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
Modified ASTM D-1946
US EPA Region IV
Workorder# 1204580B

Eleven 1 Liter Tedlar Bag samples were received on April 27, 2012. The laboratory performed analysis via Modified ASTM Method D-1946 for Methane in air using GC/FID. The method involves direct injection of 1.0 mL of sample.

Method modifications taken to run these samples are summarized in the table below. Specific project requirements may over-ride the ATL modifications.

Requirement	***ASTM D-1946***	***ATL Modifications***
Calibration	A single point calibration is performed using a reference standard closely matching the composition of the unknown.	A 3-point calibration curve is performed. Quantitation is based on a daily calibration standard which may or may not resemble the composition of the associated samples.
Reference Standard	The composition of any reference standard must be known to within 0.01 mol % for any component.	The standards used by ATL are blended to a >/= 95% accuracy.
Sample Injection Volume	Components whose concentrations are in excess of 5 % should not be analyzed by using sample volumes greater than 0.5 mL.	The sample container is connected directly to a fixed volume sample loop of 1.0 mL on the GC. Linear range is defined by the calibration curve. Bags are loaded by vacuum.
Normalization	Normalize the mole percent values by multiplying each value by 100 and dividing by the sum of the original values. The sum of the original values should not differ from 100% by more than 1.0%.	Results are not normalized. The sum of the reported values can differ from 100% by as much as 15%, either due to analytical variability or an unusual sample matrix.
Precision	Precision requirements established at each concentration level.	Duplicates should agree within 25% RPD for detections > 5 X's the RL.

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

There were no analytical discrepancies.

Definition of Data Qualifying Flags

Seven qualifiers may have been used on the data analysis sheets and indicate as follows:
B - Compound present in laboratory blank greater than reporting limit.
J - Estimated value.
E - Exceeds instrument calibration range.
S - Saturated peak.
Q - Exceeds quality control limits.
U - Compound analyzed for but not detected above the detection limit.
M - Reported value may be biased due to apparent matrix interferences.
File extensions may have been used on the data analysis sheets and indicates as follows:
a-File was requantified
b-File was quantified by a second column and detector
r1-File was requantified for the purpose of reissue

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Summary of Detected Compounds
NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

Client Sample ID: EM01APR2612

Lab ID#: 1204580B-01A

Compound	Rpt. Limit (%)	Amount (%)
Methane	0.00010	0.00021

Client Sample ID: EM02APR2612

Lab ID#: 1204580B-02A

Compound	Rpt. Limit (%)	Amount (%)
Methane	0.00010	0.00021

Client Sample ID: EM03APR2612

Lab ID#: 1204580B-03A

Compound	Rpt. Limit (%)	Amount (%)
Methane	0.00010	0.00026

Client Sample ID: EM04APR2612

Lab ID#: 1204580B-04A

Compound	Rpt. Limit (%)	Amount (%)
Methane	0.00010	0.00020

Client Sample ID: EM05APR2612

Lab ID#: 1204580B-05A

Compound	Rpt. Limit (%)	Amount (%)
Methane	0.00010	0.00020

Client Sample ID: EM06APR2612

Lab ID#: 1204580B-06A

Compound	Rpt. Limit (%)	Amount (%)
Methane	0.00010	0.00024

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Summary of Detected Compounds
NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

Client Sample ID: EM07APR2612

Lab ID#: 1204580B-07A

Compound	Rpt. Limit (%)	Amount (%)
Methane	0.00010	0.00022

Client Sample ID: EM08APR2612

Lab ID#: 1204580B-08A

Compound	Rpt. Limit (%)	Amount (%)
Methane	0.00010	0.00020

Client Sample ID: EM09APR2612

Lab ID#: 1204580B-09A

Compound	Rpt. Limit (%)	Amount (%)
Methane	0.00010	0.00020

Client Sample ID: EM13APR2612

Lab ID#: 1204580B-10A

Compound	Rpt. Limit (%)	Amount (%)
Methane	0.00010	0.00020

Client Sample ID: EM14APR2612

Lab ID#: 1204580B-11A

Compound	Rpt. Limit (%)	Amount (%)
Methane	0.00010	0.00020

eurofins | Air Toxics

Client Sample ID: EM01APR2612

Lab ID#: 1204580B-01A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9042905**	**Date of Collection: 4/26/12 4:27:00 AM**	
Dil. Factor:	**1.00**	**Date of Analysis: 4/28/12 06:32 PM**	

Compound	**Rpt. Limit (%)**	**Amount (%)**
Methane	0.00010	0.00021

Container Type: 1 Liter Tedlar Bag

eurofins | Air Toxics

Client Sample ID: EM02APR2612

Lab ID#: 1204580B-02A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9042906**	**Date of Collection: 4/26/12 4:57:00 AM**	
Dil. Factor:	**1.00**	**Date of Analysis: 4/28/12 07:02 PM**	

Compound	**Rpt. Limit (%)**	**Amount (%)**
Methane	0.00010	0.00021

Container Type: 1 Liter Tedlar Bag

eurofins | Air Toxics

Client Sample ID: EM03APR2612

Lab ID#: 1204580B-03A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9042907**	**Date of Collection: 4/26/12 5:06:00 AM**	
Dil. Factor:	**1.00**	**Date of Analysis: 4/28/12 07:23 PM**	

Compound	**Rpt. Limit (%)**	**Amount (%)**
Methane	0.00010	0.00026

Container Type: 1 Liter Tedlar Bag

eurofins | Air Toxics

Client Sample ID: EM04APR2612

Lab ID#: 1204580B-04A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9042908**	**Date of Collection: 4/26/12 5:21:00 AM**	
Dil. Factor:	**1.00**	**Date of Analysis: 4/28/12 07:45 PM**	

Compound	Rpt. Limit (%)	Amount (%)
Methane	0.00010	0.00020

Container Type: 1 Liter Tedlar Bag

eurofins | Air Toxics

Client Sample ID: EM05APR2612

Lab ID#: 1204580B-05A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9042909**	**Date of Collection: 4/26/12 5:33:00 AM**	
Dil. Factor:	**1.00**	**Date of Analysis: 4/28/12 08:07 PM**	

Compound	Rpt. Limit (%)	Amount (%)
Methane	0.00010	0.00020

Container Type: 1 Liter Tedlar Bag

eurofins | Air Toxics

Client Sample ID: EM06APR2612

Lab ID#: 1204580B-06A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9042910**	**Date of Collection: 4/26/12 5:42:00 AM**	
Dil. Factor:	**1.00**	**Date of Analysis: 4/28/12 08:29 PM**	

Compound	Rpt. Limit (%)	Amount (%)
Methane	0.00010	0.00024

Container Type: 1 Liter Tedlar Bag

eurofins | Air Toxics

Client Sample ID: EM07APR2612

Lab ID#: 1204580B-07A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9042911**	**Date of Collection: 4/26/12 5:53:00 AM**	
Dil. Factor:	**1.00**	**Date of Analysis: 4/28/12 08:53 PM**	

Compound	Rpt. Limit (%)	Amount (%)
Methane	0.00010	0.00022

Container Type: 1 Liter Tedlar Bag

eurofins | Air Toxics

Client Sample ID: EM08APR2612

Lab ID#: 1204580B-08A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9042912**	**Date of Collection: 4/26/12 6:00:00 AM**	
Dil. Factor:	**1.00**	**Date of Analysis: 4/28/12 09:18 PM**	

Compound	**Rpt. Limit (%)**	**Amount (%)**
Methane	0.00010	0.00020

Container Type: 1 Liter Tedlar Bag

eurofins | Air Toxics

Client Sample ID: EM09APR2612

Lab ID#: 1204580B-09A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9042913**	**Date of Collection: 4/26/12 6:07:00 AM**	
Dil. Factor:	**1.00**	**Date of Analysis: 4/28/12 09:43 PM**	

Compound	Rpt. Limit (%)	Amount (%)
Methane	0.00010	0.00020

Container Type: 1 Liter Tedlar Bag

eurofins | Air Toxics

Client Sample ID: EM13APR2612

Lab ID#: 1204580B-10A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9042914**	**Date of Collection: 4/26/12 7:39:00 AM**	
Dil. Factor:	**1.00**	**Date of Analysis: 4/28/12 10:06 PM**	

Compound	Rpt. Limit (%)	Amount (%)
Methane	0.00010	0.00020

Container Type: 1 Liter Tedlar Bag

eurofins | Air Toxics

Client Sample ID: EM14APR2612

Lab ID#: 1204580B-11A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9042915**	**Date of Collection: 4/26/12 7:49:00 AM**	
Dil. Factor:	**1.00**	**Date of Analysis: 4/28/12 10:27 PM**	

Compound	Rpt. Limit (%)	Amount (%)
Methane	0.00010	0.00020

Container Type: 1 Liter Tedlar Bag

eurofins | Air Toxics

Client Sample ID: Lab Blank

Lab ID#: 1204580B-12A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9042904**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 4/28/12 06:10 PM**	

Compound	**Rpt. Limit (%)**	**Amount (%)**
Methane	0.00010	Not Detected

Container Type: NA - Not Applicable

eurofins | Air Toxics

Client Sample ID: LCS

Lab ID#: 1204580B-13A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9042902**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 4/28/12 05:27 PM**	

Compound	%Recovery
Methane	99

Container Type: NA - Not Applicable

eurofins | Air Toxics

Client Sample ID: LCSD

Lab ID#: 1204580B-13AA

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9042916**	**Date of Collection: NA**
Dil. Factor:	**1.00**	**Date of Analysis: 4/28/12 10:57 PM**

Compound	**%Recovery**
Methane	98

Container Type: NA - Not Applicable

End of Report